# LIVING NEXT TO A STREAM

# BE STREAM SMART!

# HOW TO BE A STREAM & FISH FRIENDLY HOMEOWNER

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Ammonoosuc Conservation Trust (ACT) is a non-profit lands conservancy whose mission is to work with willing landowners and other partners to protect northern New Hampshire's lands and waters.

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Stpecial appreciation to ACT members for their support of our educational programs and land protection projects. To find more information about our work go to aconservationtrust.org.

Better yet, come visit!

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# WHY BE STREAM FRIENDLY?

We're lucky to live in a part of the country where clear mountain streams, placid lakes and ponds, and bountiful clean drinking water seem an unquestioned part of our lives.

**There's an important connection between how we treat our streams and the continued bounty of clean water for people and wildlife.**

Without foresight and action on our part, there is no assurance that water will be so free and easy in the future. Numerous scientific studies predict that water will be a challenged and even disputed resource in decades to come.

Just to our south, the Merrimack River watershed is predicted to be among the top five regions in the country experiencing water quality degradation due to an influx of population/ growth and loss of forestland over the course of this century. (Thorn, A. M., et al., 2017)

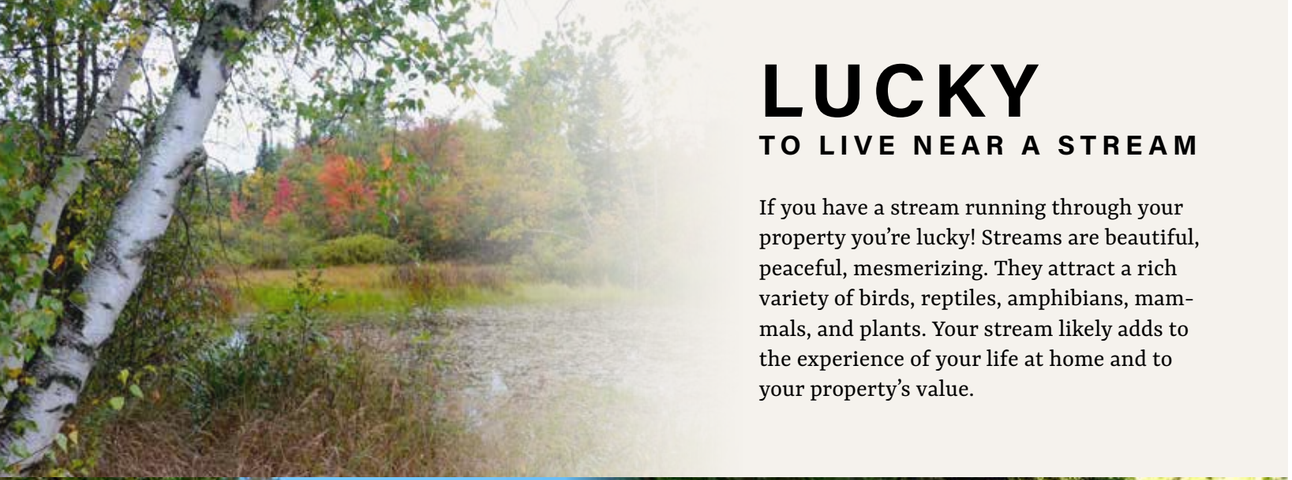
Pressures of growth and demand for water – some of it to be captured and sold elsewhere – may be expected to overflow into our region.

**Our actions today will help protect the natural resources that we rely on for our region's character, beauty, and recreational opportunities, as well as basic needs like clean water.**

Ammonoosuc Conservation Trust (ACT) believes that protecting our waterways is the single most important thing we can do for future generations of people and wildlife. It is the mission of ACT to protect as many of the waterways of our region as possible. Our vision is that our region leads New Hampshire, and even the nation, in private, voluntary protection of waterways. We believe that if our communities embrace the care of water and other natural resources, the North Country will flourish environmentally and economically into the future.

The tools we have to accomplish this vision are voluntary and non-regulatory. Much can be accomplished through the practice of stream-friendly land uses by landowners and communities. And, streams and adjacent land can be permanently protected through legal conservation agreements with landowners.

This pamphlet provides homeowners with simple, inexpensive ways to protect and enhance their streams. Sometimes what you *don't do* is just as important as actions you take.



# LUCKY

## TO LIVE NEAR A STREAM

If you have a stream running through your property you're lucky! Streams are beautiful, peaceful, mesmerizing. They attract a rich variety of birds, reptiles, amphibians, mammals, and plants. Your stream likely adds to the experience of your life at home and to your property's value.



# GIVE STREAM AN EDGE

Riparian areas are unique and vital parts of our interrelated water system that includes groundwater, streams and rivers, ponds and lakes, and wetlands. Riparian areas extend up and down streams and along pond and lakeshores. They include all the land that gets flooded during big storms, or scoured during spring ice out. Because these areas are subject to major water forces and so much change, they are a unique and complex ecosystem.

*Riparian: from the Latin* "ripa"*, river bank*

The land along waterways, called a riparian area or riparian zone, is particularly important for clean water and wildlife. One of the most important things you can do for your stream – and for the rest of your property – is to have a healthy riparian area.

The riparian area acts as a buffer between the waterway itself and the land around it. In a natural state, the riparian area is rich with vegetation, from tall grasses and shrubs to mature trees.

Through their root systems, vegetation helps keep the streambank in place during high water, protecting your property and safety.

A healthy buffer also helps filter and absorbs runoff from storms. This helps to keep pollutants from roads, fertilizer from lawns and gardens, and sediment from getting into the streams and affecting water quality.

A good riparian buffer works both ways: it helps protect waterways from runoff and helps protect our properties from flooding.

A healthy buffer also provides travel ways for wildlife and creates good habitat. Dead trees are an important part of fish habitat. Allowing trees to stay along the stream means that more organic matter, leaves, branches, and even whole fallen trees, will reach the stream and provide shade, cover for fish, and through slow decomposition, organic material to nourish the food chain.

You can let vegetation grow naturally, or you can speed things along by planting native trees and shrubs in the riparian area. You may be able to get some technical and financial assistance to do these plantings (see Go Native on p. 11).

# Good News!

Baby brook trout live here in the region of the Ammonoosuc River. It's good news because brook trout demand cold, clean water – they won't live anywhere else. If streams are supporting native trout, that's a sign of good water quality for people and wildlife. It's our opportunity and challenge to keep keeps streams that way.

Brook trout are also an important part of our natural heritage, and of our recreational economy, as local anglers and visitors from all over the world delight in catching New England's emblematic fish.

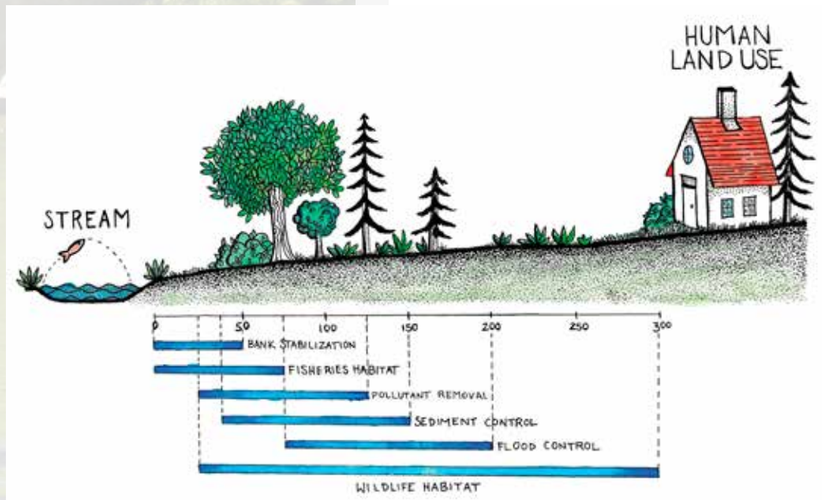
© Bob Michelsen/Brook Trout

Gale River, Franconia

# Buffers Are Cool!

Many creatures that call streams home require cold water. Brook trout, for instance rarely live in water that reaches over 70 degrees. In our longer warmer, drier summers, it may become increasingly challenging for them to survive.

Shade is one of the key ways to keep streams cold.Trees and larger shrubs are crucial in providing shade. One of the simplest and most important things you can do to help keep a healthy stream is to allow trees and shrubs to grow along the banks.




## *How Wide?*

As a rule, the wider the buffer, the more effective it is for protecting water quality and benefitting wildlife. That said, factors like topography, hydrology, soils, vegetation, the size of the stream itself, and surrounding land uses all factor in. In our area, a 50-foot buffer is considered the minimum effective width to help stabilize erosion of stream banks. As wildlife habitat, 50 feet is enough room for chickadees and cardinals, but bobcats prefer 300 feet and bald eagles and herons need 600 foot buffers. You can find more detailed information on buffer widths and functions in *Riparian Buffers for the Connecticut River Watershed.*

## WHICH CRITTERS USE BUFFERS?

Riparian areas are incredibly important for a whole host of our region's birds, reptiles, amphibians, and mammals. Many frogs and salamanders spend the greater part of their lives in these areas. Eagles, blue herons, and wood ducks nest in them.

Bear, beaver, otter, and mink, among many other species, rely on intact forests along streams and rivers for food, cooling, foraging, cover, and travel between other areas of habitat.



# NO CUT ZONE

## KEEP YOUR BUFFER MOWER AND CHAINSAW FREE

Increasing  vegetation around your stream is one of the most important things you can do for the health of your stream and the protection of your property.  It would be counterproductive to cut down trees in the riparian area or mow to the edge of the stream.

For some people, not cutting might mean getting used to a more natural view. In the long run, this choice is an investment in stream health and in your own property. Removing or mowing vegetation and cutting trees means losing those root systems that help keep the stream bank soils in place. Without them, banks may become more susceptible to erosion, crumble and cave in, and your land washes away. It also means that those natural filters of sediment and contaminants are gone, and stormwater can flow uninhibited into your stream – bad news for the creatures there!

## HEALTHY BUFFERS ARE GOOD FOR STREAMS & PEOPLE:

- Stabilize stream banks
- Reduce erosion and property loss
- Shade helps keep water temperatures cool
- Increase habitat for wildlife
- Reduce sediment and contamtinants from storm runoff
- Increase natural beauty
- Give streams a place to overflow and help absorb high water

Buffer planting, ACT's Ammonoosuc River Wildlife Management Area, Lisbon.

## GO NATIVE

The N.H. State Nursery (nhnursery.com) offers a variety of native trees and shrubs that are good for planting in your riparian area. Among these species are dogwoods, elderberry, shadbush, willows, box elder, cottonwood, white pine, sumac, viburnums, cherry, ash, silver maple, red maple, and red oak.

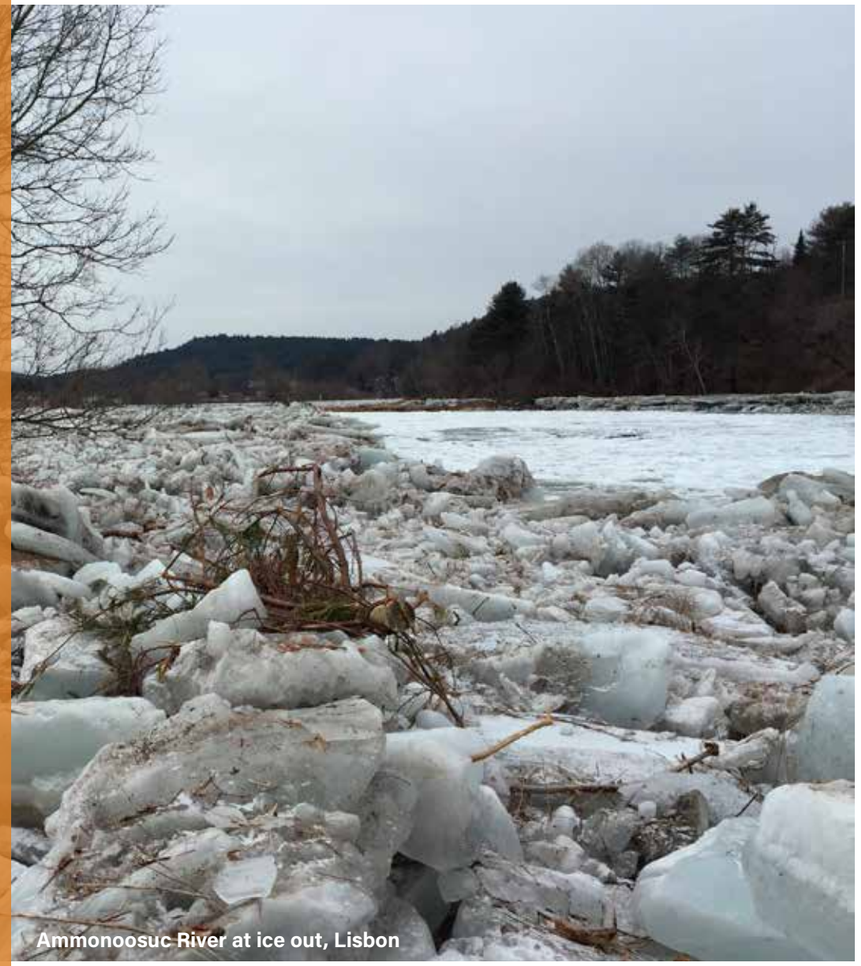
Landowners may be eligible for cost share funds for restoring riparian buffers, See contact information for NRCS on p. 18

# *Floodplains Serve Us*

Floodplains act like natural sponges. They absorb high water and give tons of ice space to melt during spring ice out. But if impervious surfaces like asphalt or cement cover the floodplain, more stormwater flows into our streams and rivers, which can mean more flooding.

Not building structures in floodplains seems like common sense, since immense property damage can result from flooding. Nevertheless, building in floodplains is allowed by most towns in our region.

Floodplains shield the human environment from destruction from high water; they help filter run off and protect clean water; they allow groundwater to get replenished; they are incredibly rich places for wildlife. Our service to these areas is to protect them from development.



Ammonoosuc River at ice out, Lisbon

## LET THE STREAM TAKE ITS NATURAL COURSE

In the old days, rip rap made of concrete blocks, boulders, and even junk cars were dropped in rivers to try to stop streambank erosion. Sometimes the erosion was caused by even earlier efforts to accommodate new roads, railroads, log drives, and buildings by changing the course streams and rivers - usually by straightening the channels and getting rid of big bends and oxbows.

But rip rap can actually exacerbate the problem or shift it elsewhere in the river, and parts of our region are still feeling the effects of these changes in river flow dynamics. If bank erosion concerns you, consult with a wetlands engineer or the Natural Resources Conservation Service about new approaches to bank stabilization.

Don't dump in – or take out – boulders and big rocks. When trees fall into your stream, unless they're hazardous, let them stay. They provide excellent habitat for fish and other aquatic wildlife. They also add nutrients as they slowly decompose.

Ham Branch tributary, Easton

## TIMBER HARVESTING

If you have enough land to harvest timber, get a forester or ecologist skilled in natural resource management to mark and manage your sale. Keep large trees near your stream, and don't cut near vernal pools or wetlands.

On land we own and manage, ACT keeps a 200-foot no-cut riparian buffer along year-round streams and keeps at least a 100-foot buffer around wetlands, intermittent springs, and vernal pools.



## IS THE GRASS REALLY GREENER?

Some people who move to our region from suburbia feel liberated from keeping up with neighbors on how green their lawns are. In case you're still in that rat race, read fertilizer instructions carefully. It's common to over fertilize, and runoff from a good rainstorm can carry excess fertilizer right into your stream.  All those nutrients encourage too much algae, which robs oxygen needed by fish and other aquatic wildlife. A better alternative? Go native and leave the suburban yard ideal behind.

## KEEP YOUR SEPTIC TANK IN GOOD CONDITION

Without maintenance, plumbing systems can wear out and leak, and can be a source of pollution to your stream. Pumping your septic system every three years is the rule of thumb. Also, try to reduce the amount chemicals, bleach, oil, and grease you might wash down your drain or clean from brushes, tools, etc. in your driveway that can make their way into your stream.

## BUILDING NEW?

Keep new buildings, roads, and driveways at least 300 feet away from streams. Make pavement (such as for a new driveway or walkway) permeable, so that water can seep through it and be absorbed into the ground.

## DON'T DUMP

Most people wouldn't think of dumping trash or an old car in their stream (though in years gone by that was certainly not uncommon). But some people put yard waste like grass clipping and leaves into streams, thinking it's naturally good. But it's not. As all that organic waste decomposes it can rob dissolved oxygen that's critical for fish and other aquatic creatures. A healthy riparian buffer provides plenty of its own organic matter.

Garden and yard clippings, along with kitchen vegetable scraps, can be turned into great compost. Just don't have your pile too close to the stream – keep it at least 100 feet away.

Ham Branch, Franconia



## EVEN THE SMALLEST STREAMS COUNT!

Small, headwater streams make up the vast majority – some studies say at least 80 percent – of our nation's stream network. Our region is full of them. They originate in the mountains as little trickles, grow as little brooks join them, flow through neighborhoods and connect with larger rivers like the Gale, the Ammonoosuc, and finally the Connecticut River itself. Then, it's all downstream to the Long Island Sound and the Atlantic Ocean.

Because of this the condition of the land around them has an enormous effect on water quality.

Political and regulatory attention are generally focused on the health of the larger streams and rivers, and to good effect, as the quality of the Ammonoosuc and Connecticut rivers has improved dramatically in the last 40 – 50 years.

Private, voluntary approaches to the health of all of our streams, practiced by individual landowners and communities, can be part of our region's land ethic and pride. Our region can lead the way in protecting our waterways.

# RESOURCES AND INFORMATION

## Resources for Landowners

Natural Resources Conservation Service and the Grafton County Conservation District: both are at the USDA Service Center in Orford, (603) 353-4650

Natural Resources Conservation Service and the Coös County Conservation District: both are at the USDA Service Center in Lancaster, (603) 788-4651.

*Good Forestry in the Granite State (UNH Cooperative Extension*, 2010, in print and at: extension.unh.edu/goodforestry/index.htm.

*Best Management Practices for Forestry: Protecting NH's Water Quality* UNH Cooperative Extension, 2005, in print and at: extension.unh.edu/resources/files/resource000248_rep267.pdf

## Resources for this Publication


"Riparian Buffers and Corridors," technical paper, Vermont Agency of Natural Resources, 2005.

Hawes, Ethan and Smith, Markelle "Riparian Buffer Zones: Functions and Recommended Widths," Yale School of Forestry and Environmental Studies, April 2005.

*Life at the Water's Edge: Living in Harmony with Your Backyard Stream*, Lower Hudson Coalition of Conservation Districts.

Myer, Judy L., et al, *Where Rivers are Born: The Scientific Imperative for Defending Small Streams and Wetlands*, American Rivers and the Sierra Club, 2003.

*Riparian Buffers for the Connecticut River Watershed*, Connecticut River Joint Commissions, 2001 crjc.org/pubs/riparian-buffers/.

*Headwater Streams*, NH Wildlife Action Plan "Habitat Stewardship Series," UNH Cooperative Extension.

Williams, Jack E., et al, *My Healthy Stream*, Trout Unlimited and the Aldo Leopold Foundation, 2012.

Klapproth, Julia C. and Johnson, James E., *Understanding the Science Behind Riparian Forest Buffers: Effects on Water Quality*, VCE Publications, Virginia Tech, pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/420/420-151/420-151_pdf.pdf.

Thorn, A. M., et al. *Development of scenarios for land cover, population density, impervious cover, and conservation in New Hampshire, 2010–2100.* Ecology and Society 22(4):19, 2017, doi.org/10.5751/ES09733220419.

Samal, N. R., et al, *A coupled terrestrial and aquatic biogeophysical model of the Upper Merrimack River watershed, New Hampshire, to inform ecosystem services evaluation and management under climate and land-cover change*. Ecology and Society 22(4):18, 2017. doi.org/10.5751/ES-09662-220418.




Ammonoosuc River, Bath

## ABOUT ACT

With willing landowners and local communities, Ammonoosuc Conservation Trust has permanently protected nearly 5,000 acres of wildlife habitat, rivers and streams, forests, farmlands, recreational lands, and places with historic, cultural, and scenic value.

ACT practices conservation that retains the North Country character, benefits our region's fish and wildlife, keeps farming and forestry as part of our economy, and enhances the vitality and health of our communities. We also believe in having fun! ACT offers a variety of educational programs, outdoor activities, and other events for people of all ages.

## WE OFFER LANDOWNERS CONSERVATION OPTIONS:

**Conservation Agreements:** ACT works with willing landowners to set up voluntary legal agreements, called conservation easements, that permanently limit development of land in order to protect its conservation values while staying in private ownership and use.

**Gifts of Land:** ACT happily accepts land through gifts or a bequest. Land with high conservation value will be permanently conserved; some families create a Memorial or Family Forest as part of their legacy. The donation of real estate such as a home, camp, or building lot, is also greatly appreciated, as these may be sold with the proceeds going to protect North Country land with significant conservation value. There are tax benefits for such donations.

**Land Acquisitions:** In special cases, ACT may be able to raise funds to purchase land or compensate landowners for a conservation easement.

In any of these conservation scenarios, there may be tax benefits for the landowner.

AMMONOOSUC CONSERVATION TRUST

**Ready to think about conservation?**

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**Franconia, NH**
**03580**

**Call:**
**603.823.7777**

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instagram.com/actnh

ACCREDITED LAND TRUST ACCREDITATION COMMISSION

*Thanks to the support of many, ACT has been working for nearly 20 years to protect land in northern New Hampshire for families, communities, the environment, and the economy.*