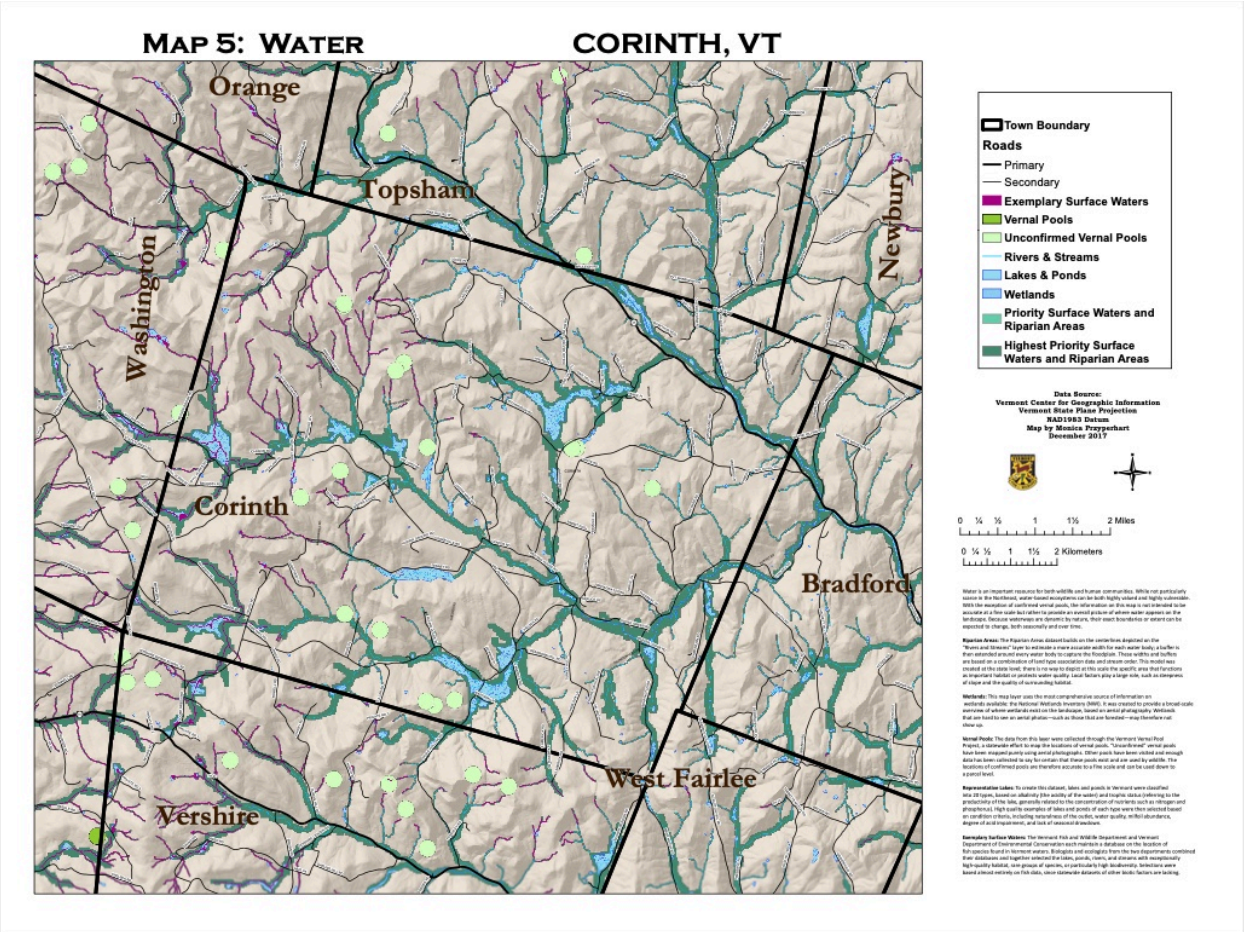
Have you walked along your favorite steam lately….is it swollen with all the runoff from the recent rains? Or has it shrunk to a mere trickle. Robert Frost captured the ever changing nature of our forest waterways….

By June our brook's run out of song and speed.
Sought for much after that, it will be found
Either to have gone groping underground
(And taken with it all the Hyla breed
That shouted in the mist a month ago,
Like ghost of sleigh-bells in a ghost of snow)--
Or flourished and come up in jewel-weed,
Weak foliage that is blown upon and bent
Even against the way its waters went.
Its bed is left a faded paper sheet
Of dead leaves stuck together by the heat--
A brook to none but who remember long.
This as it will be seen is other far
Than with brooks taken otherwhere in song.
We love the things we love for what they are.

Corinth is interlaced with many connected waterways providing homes to a wide variety of plants and animals. This Riparian Landscape is defined as the land along the bank of a river, stream or lake. Riparian areas are ecosystems comprising streams, rivers, lakes, wetlands, banks, and floodplains that form a complex and interrelated hydrological system. Because of the diverse and dynamic nature of riparian ecosystems, they support a wide variety of plant



Riparian Habitats

and animal communities, including insects, reptiles, amphibians, fish, waterfowl, songbirds, bats, mink, and otter. Many species are dependent upon healthy riparian ecosystems.

We've talked about Corinth's abundant Forest Blocks and Wildlife Corridors in our past postings, Riparian Habitats are the third leg of our local ecosystem stool, they provide both buffers and connectivity.

From "A Landowners Guide, Wildlife Habitat Manage for Lands in Vermont", Vermont Fish and Wildlife Department.

BUFFERS
Riparian areas are important not only for the plants and animals that inhabit them, but also for the influence they have on adjacent waters. Forested areas between the water and developed land maintain habitat suitable for riparian species. The downed wood, leaves, and other organic material that riparian areas contribute to aquatic systems are important components of the food base and habitat structure in Vermont's water bodies. Fallen trees provide loafing areas for ducks, snakes, and turtles and important protective cover for fish. Mature trees and overhanging vegetation in riparian areas provide shade in the summer and insulate stream channels in the winter, moderating the effect of extreme temperatures. Coldwater species such as brook trout require water temperatures well below 70° F. While many of Vermont's larger streams regularly exceed 80° F during warm summer months, small tributary streams often provide cool water refuge for fish and other aquatic organisms inhabiting these systems. Wide forested buffers along riparian areas are also crucial for absorbing and filtering overland runoff, thereby protecting water quality. Roots of trees and other woody vegetation bind soils and help to maintain stable stream banks, preventing excessive stream bank erosion and sediment buildup in aquatic habitats.

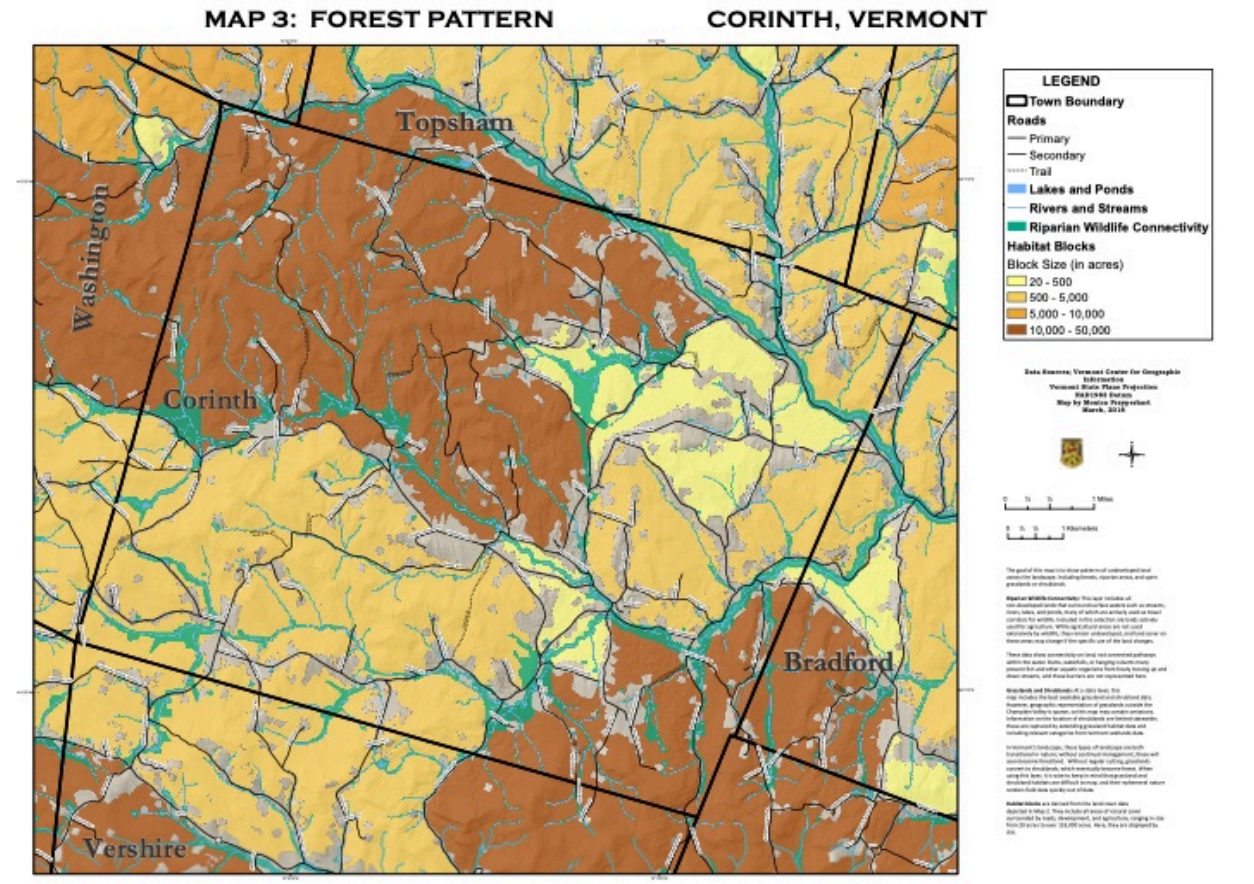
CORRIDORS

Forested riparian areas serve as travel and dispersal corridors for wildlife. They are vital connections that enable wildlife to move safely from one habitat to another to feed, breed, and nest, and for young to disperse and set up new territories. Many species of amphibians and turtles rely on stream and river habitats during the breeding season and then spend most of their lives in upland habitat, often at a considerable distance away. Larger wildlife species also depend on these areas for travel. A Vermont Fish and Wildlife Department study shows use of riparian corridors to be important for black bear movement, particularly at road crossings (Hammond, 2002).

In addition to the ecological values of riparian areas, they serve other important functions for our everyday life. These ecosystems protect water quality for drinking and recreation, protect property from flood and ice flow damage, and provide for recreation, aesthetics, and educational opportunities.

Clearly our wildlife residents in Corinth depend on our significant riparian landscape….in the face of rising world temperatures we may face challenges of our own making. Vermont can't escape the impacts of climate change.

A recent UVM study, "The 2021 Vermont Climate Assessment" as reported by Seven Days* points out that "…..Vermont is warmer by 2 degrees F, on average than 1900, researchers



Riparian Connectivity

found, and may warm by another 5 to 9 degrees by 2100. The state is significantly wetter too; Average rainfall is up by 21 percent since 1900."

Also "more Frequent and severe flooding is among the chief challenges the report identifies. Wetter winters, earlier spring thaws, and more intense storms are likely to lead to more events like Tropical Storm Irene, which caused widespread damage across the state a decade ago."

Once again protecting our critical landscape characteristics benefits not only our wild friends but also protects our quality of life.

Vermont's Fish and Wildlife Department recommends specific Conservation goals to protect our riparian areas, generally defined as land on the all sides of a waterway's edge extending 100-300 feet. These goals include:

1. Provide for the longterm stewardship of and/or protect existing high quality riparian habitat within the town.
2. Increase the number of miles naturally vegetated stream bank and lakeshore in town. Natural vegetation should ultimately consist of native woody plant species except where natural meadows occur, usually in association with wetlands.

3. Provide for long term stewardship and/or protection of existing high quality aquatic features and riparian habitats throughout out the town or area of interest.

Since most of Corinth's streams travel through privately owned properties the opportunity to protect them and their associated habitats are in the hands of the landowner.

Again from the Vermont Fish and Wildlife Department
…….The best way to protect both aquatic and terrestrial wildlife habitat functions within the riparian area is to maintain as much of it as possible in an undisturbed, naturally vegetated state. A diversity of natural vegetation (trees, shrubs, and so on) is far superior to cropland, lawn, or other heavily managed areas for supporting wildlife. Where alteration of the riparian area is unavoidable, it should minimize impacts to buffer functions and connection to adjacent habitats. Natural features within the riparian area that may be of particular value to wildlife should be identified and safeguarded. Other general rules of thumb for riparian buffer management include:

- *Exclude livestock and vehicles from the buffer except for designed stream crossings. Cows and other livestock can trample plants, promote erosion, and degrade water quality. • Control invasive plants to promote establishment of native trees and shrubs (see Chapter 17, Invasive Species Management).*
- *Do not dispose of refuse in the buffer. Dumping leaves, grass clippings, and other yard refuse can kill existing vegetation and result in stream bank erosion due to the loss of stabilizing roots. Remove urban debris such as tires and old appliances.*
- *Leave natural woody debris in stream channels to create pools and provide cover and shade for fish and other aquatic organisms. Logging debris is not considered natural debris as it may be in violation of Vermont Acceptable Management Practices.*
- *Minimize the use of stream crossings. Where stream crossings are unavoidable, bridges are preferred over culverts as they present less of a potential barrier to fish and wildlife movements. Stream crossings often require state or federal permits. Contact a state river management engineer if you are planning to cross a stream with a culvert or bridge, or plan to conduct any activity involving a stream or river.*

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An interesting riparian restoration management technique is happening now in Corinth and surrounding towns, made possible by the participating landowners and led by Redstart and the Connecticut River Conservancy.. Other cooperators include the Vermont Department of Fish and Wildlife and the USDA Natural Resources Conservation Service. Called Strategic Woody Addition (SWA), it's the practice of stream restoration by adding woody biomass directly into the stream. What was once a naturally occurring process where trees fell into streams has been disrupted by historic logging operations and clear cutting. Many streams today have little structure to slow and capture organic material vital to the riparian ecosystem. SWA is a land management practice that individual landowners can conduct that makes a significant difference in the health of our local ecosystem. As an example, studies conducted by Vermont Fish and Wildlife have indicated that the practice of SWA triples brook trout biomass in streams, at the same time reducing peak water flows and hence reducing flood risk.

As a part of the ongoing "Conserve Corinth's Rural Character" program the Corinth Conservation Commission and the Blake Memorial Library are sponsoring a presentation about SWA. Presenters will include staff from the Vermont Department of Fish and Wildlife, Connecticut River Conservancy, and Redstart. This will be held at the Corinth Town Hall on December 16th at 6:30pm. The presenters will explain how SWA works and what landowners can do to participate in the management their valuable riparian landscapes for both and wild and human benefits.