Along the
Cross Vermont Trail

Exploring the Cross Vermont Trail

Lake Champlain Basin Program

Creation of this guide supported in part by Lake Champlain Basin Program.

Nature and History along the Cross Vermont Trail.

Look beneath the surface and see the rivers at the heart of the trail route.

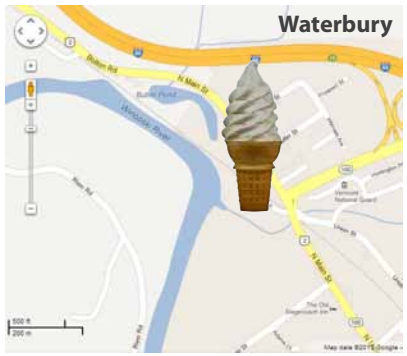
Get a feel for the shape of the land the trail passes over.

Hear the story of how connections are made via historic bridges, railroads, portages and more.

Creemee stand locations also highlighted.

version 1.0
April, 2013

Creemee Stands of the Early Holocene.



Cross Vermont Trail Association
29 Main St, Ste 4, Montpelier, VT 05602
802-498-0079
www.crossvermont.org

Key to guide maps.

While in the area of each MAP in the statewide Route Map Set, keep an eye out for things described in each PAGE of this Guide to Nature and History.

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CROSS VERMONT TRAIL

MAPS AND CUE SHEETS

Explore trails, parks and communities across Vermont, following the Wells River valley and the Winooski River valley. The Cross Vermont Trail is a project to build a new trail spanning the state east to west from the Connecticut River to Lake Champlain.

Maps show the many sections of trail that are open now, and highlight scenic roads that can be used to link together the open sections of trail to make a complete statewide trip.

Cue sheets accompany each map. Cue sheets are brief, turn by turn directions, easy to refer to at a glance. (Two copies per map, one written east to west, the other west to east.)

The purpose of the Cross Vermont Trail Association is: *to assist municipalities, recreation groups, and landowners in the creation and management of a four-season, multi-use trail across the state of Vermont for public recreation, alternative transportation, and awareness of our natural and cultural heritage.*

The trail is connecting together communities, their schools, and the natural areas between. *You can help!*
Contact us to learn more:

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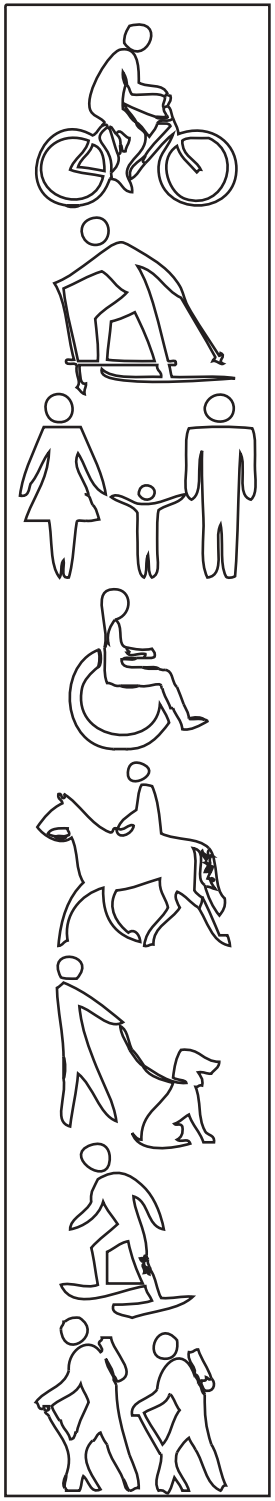


TRAIL ETIQUETTE

Good manners are to a multi use trail as a chain is to a bike, or laces to a shoe.

Be consistent. Travel on the trail in a regular way. Follow the conventions you are familiar with from driving on roads. Travel on the right, pass on the left, do not weave in and out of traffic, do not pull out suddenly in front of people, adhere to instructions on signs.

Be prepared to yield. Yield means « slow down, communicate with the people you are meeting, be prepared to stop if needed, then proceed safely. » People headed downhill yield to people headed uphill. Faster yields to slower. Motorized yield to all, bikes yield to pedestrian, pedestrians yield to people with mobility disability, pushing baby strollers, etc., and everyone yields to equestrians.

Do not block the trail. Travel on the right. Take up no more than half the width of the trail. If in a group, this may mean spreading out in single file. If trail is narrow, may mean being prepared to step to the side to let others pass. Watch and listen for others. Allow faster trail users to pass safely. If stopped (such as to talk, rest, take in the view, and what not), move off to the side, out of the way.

Pass safely. Pass on the left, when passing people travelling in the same direction as you are. Give calm, audible warning. Give person you are passing time to react before you pass them. When approaching people travelling towards you, make eye contact, say hello, be prepared to yield if there is need, keep to the right and proceed.

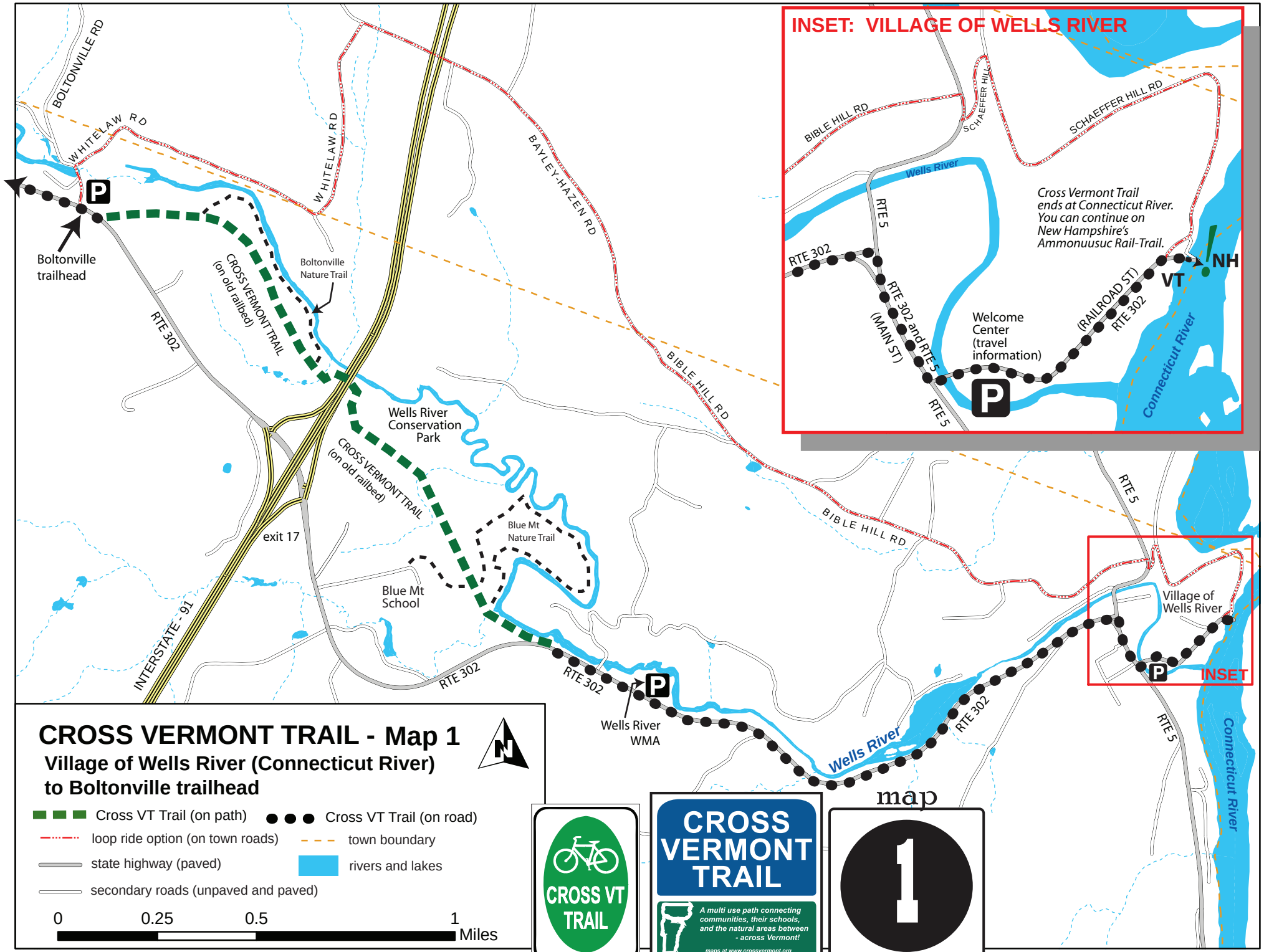
Dogs are asked to behave with the same etiquette as all other trail uses. They should show good manners, be consistent, be prepared to yield, not block the trail, and pass safely. In practice, this means they should be "under immediate control" of the person responsible for them.

ROAD RULES

Crossing Roads. Wait for a break in traffic. Go straight across the road (not on a diagonal). If there is a sign or pavement paint designating a crossing location, use that location. If there is a light controlled "walk signal", follow the signaled instructions.

Walking Along Roads. Use sidewalk if available. If no sidewalk, then walk along the side of the road facing traffic. (Easy to remember, you want to see the cars coming towards you!) Stay to the side, as far out of the traffic lane as practical.

Bicycling On Roads. Bicycles are vehicles, and may ride in the road the same as any vehicle. If you know the rules of the road for cars, then you know the rules of the road for bicycles. Ride with traffic. Always ride on the right side of the road.
Ride as far to right as practical. If there is a wide, smooth shoulder, you may be outside of the automobile travel lane. More often the shoulder is too narrow (or too rough) to allow this. In which case it is safer to ride within the regular lane of traffic (though still on the right hand side). It is legal to ride two abreast as long as you are not blocking other traffic.
Be predictable. Drive your bicycle in a smooth and predictable manner. Use hand signals to indicate turns.
Obey all traffic laws. Bicycles have the same rights and responsibilities as any vehicle and must obey all traffic laws, including stop signs and traffic signals.


INSET: VILLAGE OF WELLS RIVER
BOLTONVILLE RD
WHITELAW RD
WHITELAW RD
BAYLEY-HAZEN RD
BIBLE HILL RD
SCHAEFFER HILL RD
Wells River
RTE 5
RTE 302
RTE 302 and RTE 5 (MAIN ST)
RTE 5
(RAILROAD ST)
RTE 302
VT
NH
Cross Vermont Trail ends at Connecticut River. You can continue on New Hampshire's Ammonuusuc Rail-Trail.
Welcome Center (travel information)
Connecticut River
Boltonville trailhead
Boltonville Nature Trail
CROSS VERMONT TRAIL (on old railbed)
RTE 302
Wells River Conservation Park
CROSS VERMONT TRAIL (on old railbed)
exit 17
Blue Mt Nature Trail
Blue Mt School
INTERSTATE - 91
RTE 302
RTE 302
Wells River WMA
Wells River
RTE 302
BIBLE HILL RD
RTE 5
Village of Wells River
INSET
RTE 5
Connecticut River
CROSS VERMONT TRAIL - Map 1
Village of Wells River (Connecticut River) to Boltonville trailhead
Cross VT Trail (on path)
Cross VT Trail (on road)
loop ride option (on town roads)
town boundary
state highway (paved)
rivers and lakes
secondary roads (unpaved and paved)
0
0.25
0.5
1
Miles
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map
1

Cross Vermont Trail *cue sheet*

Map 1

Village of Wells River (Connecticut River) to Boltonville trailhead (4.02 miles)

go	for	on	type	srfc	at mile
S	0.33	Rte 302; *head west; this is east end of Cross Vt Trail statewide route at Connecticut River, Rte 302 bridge to NH, Village of Wells River*	road	paved	0.00
	•	Tourist Information Center; parking			0.29
R	0.11	Rte 302/5			0.33
L	1.77	Rte 302			0.44
	•	Wells River Wildlife Area; river access, picnic, parking.			1.86
R	1.81	Cross Vt Trail *on old railbed*	trail	gravel	2.21
	•	gate; parking (limited)			2.24
	•	pass east jct Blue Mt Nature Trail (loop).			2.44
	•	pass west jct Blue Mt Nature Trail (loop) on north side and jct trail to Blue Mt Union School south			2.5
	•	underpass beneath I-91			3.12
	•	pass east jct Boltonville Nature Trail (loop)			3.27
	•	pass west jct Boltonville Nature Trail (loop)			3.86
	•	gate; parking			3.99
	•	jct with Rte 302 (Boltonville trailhead)			4.02

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
You can help build more trail! www.crossvermont.org 802-498-0079

Cross Vermont Trail *cue sheet*

Map 1

Boltonville trailhead to Village of Wells River (Connecticut River) (4.02 miles)

go	for	on	type	srfc	at mile
L	1.81	Cross Vt Trail *on old railbed (Boltonville trailhead)*	trail	gravel	86.80
	•	gate; parking			86.83
	•	pass west jct Boltonville Nature Trail (loop)			86.96
	•	pass east jct Boltonville Nature Trail (loop)			87.55
	•	underpass beneath I-91			87.70
	•	pass west jct Blue Mt Nature Trail (loop) on north side and jct trail to Blue Mt Union School south			88.32
	•	pass east jct Blue Mt Nature Trail (loop).			88.38
	•	gate; parking (limited)			88.58
L	1.77	Rte 302	road	paved	88.61
	•	Wells River Wildlife Area; river access, picnic, parking.			88.96
R	0.11	Rte 302/5			90.38
L	0.33	Rte 302			90.49
	•	Tourist Information Center; parking			90.53
	•	*east end of Cross Vt Trail statewide route at Connecticut River, Rte 302 bridge to NH, Village of Wells River*			90.82

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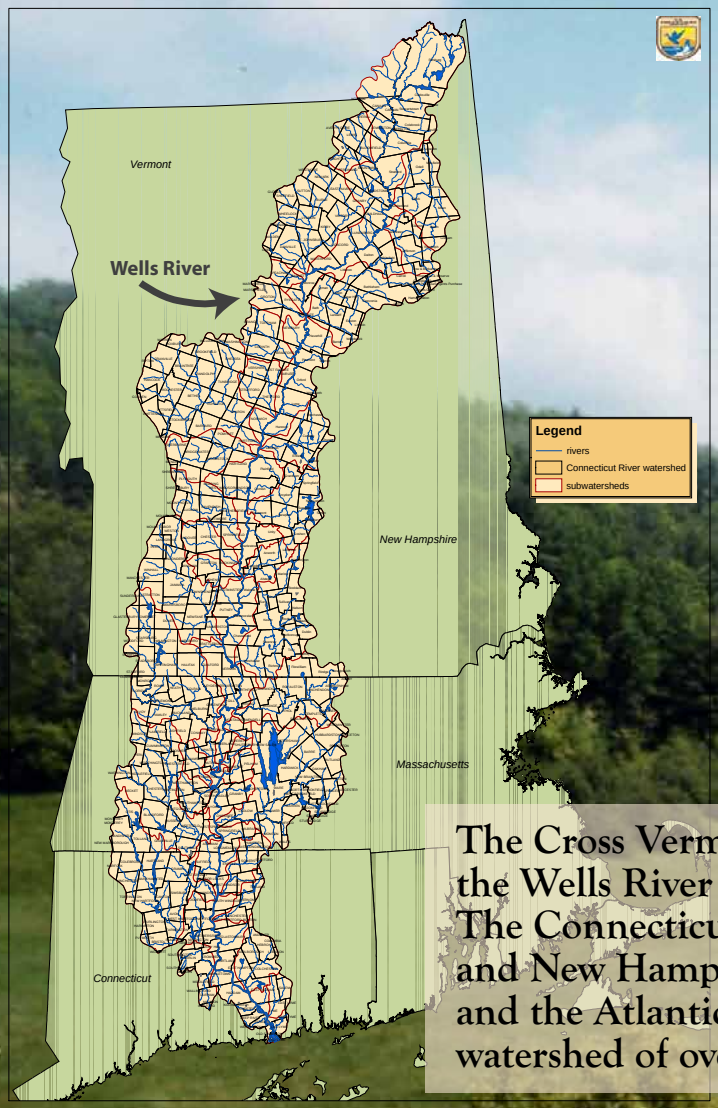
Connecticut River

Along the
1 Cross Vermont Trail

Connecticut River Watershed



"What we now call Newbury formerly comprised a portion of the Lower Cohase, and is still called that by the older people. "Cohase" has been variously held "a crooked river", "a wide valley", "a great fishing place." The longest settled, and best known parts of Newbury, are the meadows, or intervale lands, which border the Connecticut. Upper meadow, from Stair hill at Wells River to the foot of Ingall's hill; Cow meadow, from the foot of Frye Bayley's hill; then the Connecticut makes a circuit of nearly four miles, returning within a half mile of its starting point, enclosing a tract of wondrous beauty and fertility known as the Great Ox-bow.

The course of ancient river beds is to be seen in many places on the meadows. Could we know the history of these intervales, how they were formed in the course of long ages, the record would be more interesting than anything we can say about its human inhabitants. The stream has, at several points, worn away acres of land from different farms. It has, moreover, changed its channel in more than one place, and detached portions of land from one town and annexed them to the other, without consulting the authorities of either Vermont or New Hampshire, or the wishes of those who imagined themselves the owners of the soil."

- from History of Newbury, Vermont by Frederic P. Wells, 1902

The Cross Vermont Trail route starts and ends where the Wells River joins the Connecticut River, in Newbury. The Connecticut defines the boundary of Vermont and New Hampshire. It flows south to Long Island Sound and the Atlantic, running 407 miles and draining a watershed of over 11,000 square miles.

Wells River

Along the
2 Cross Vermont Trail

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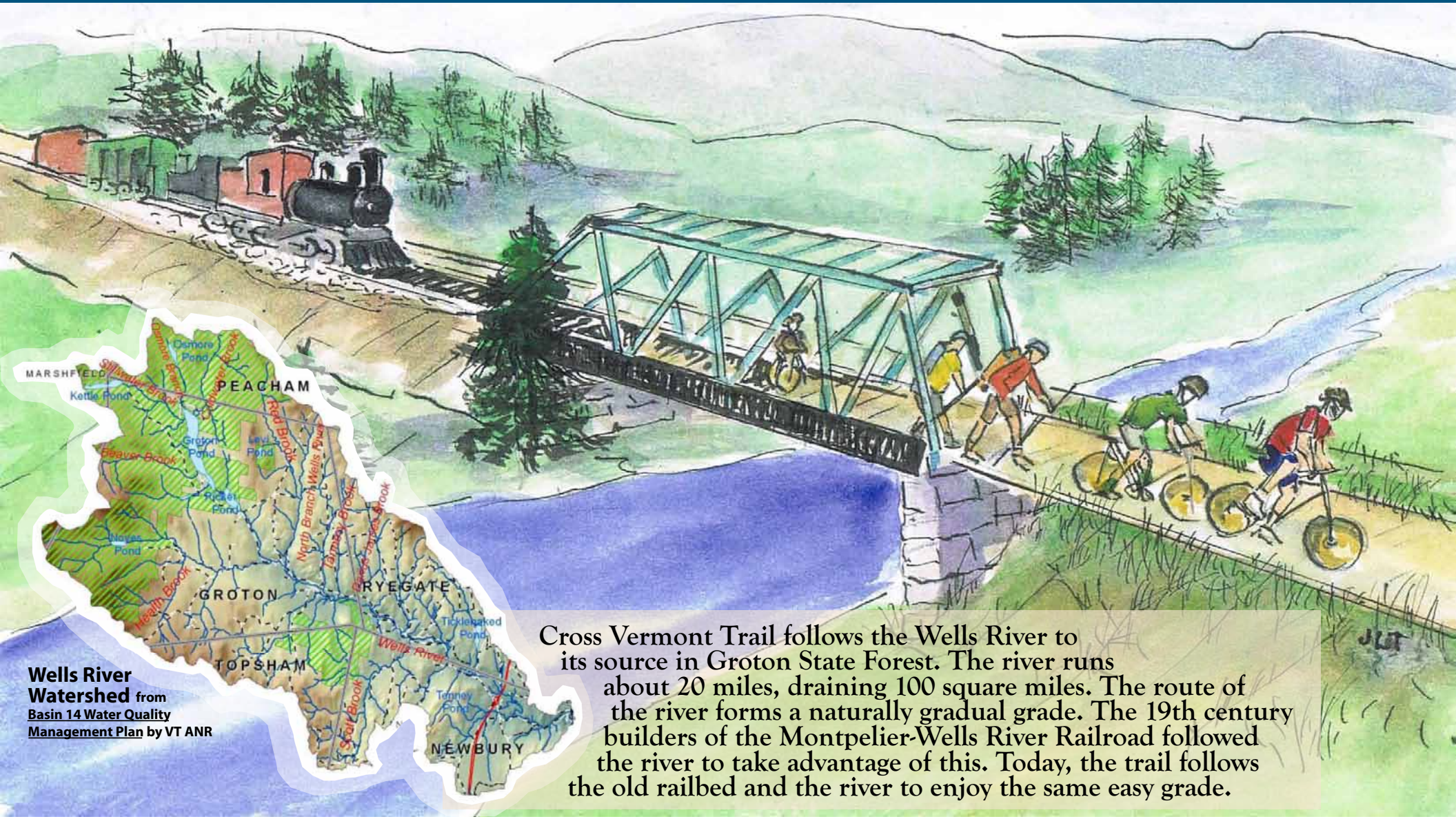
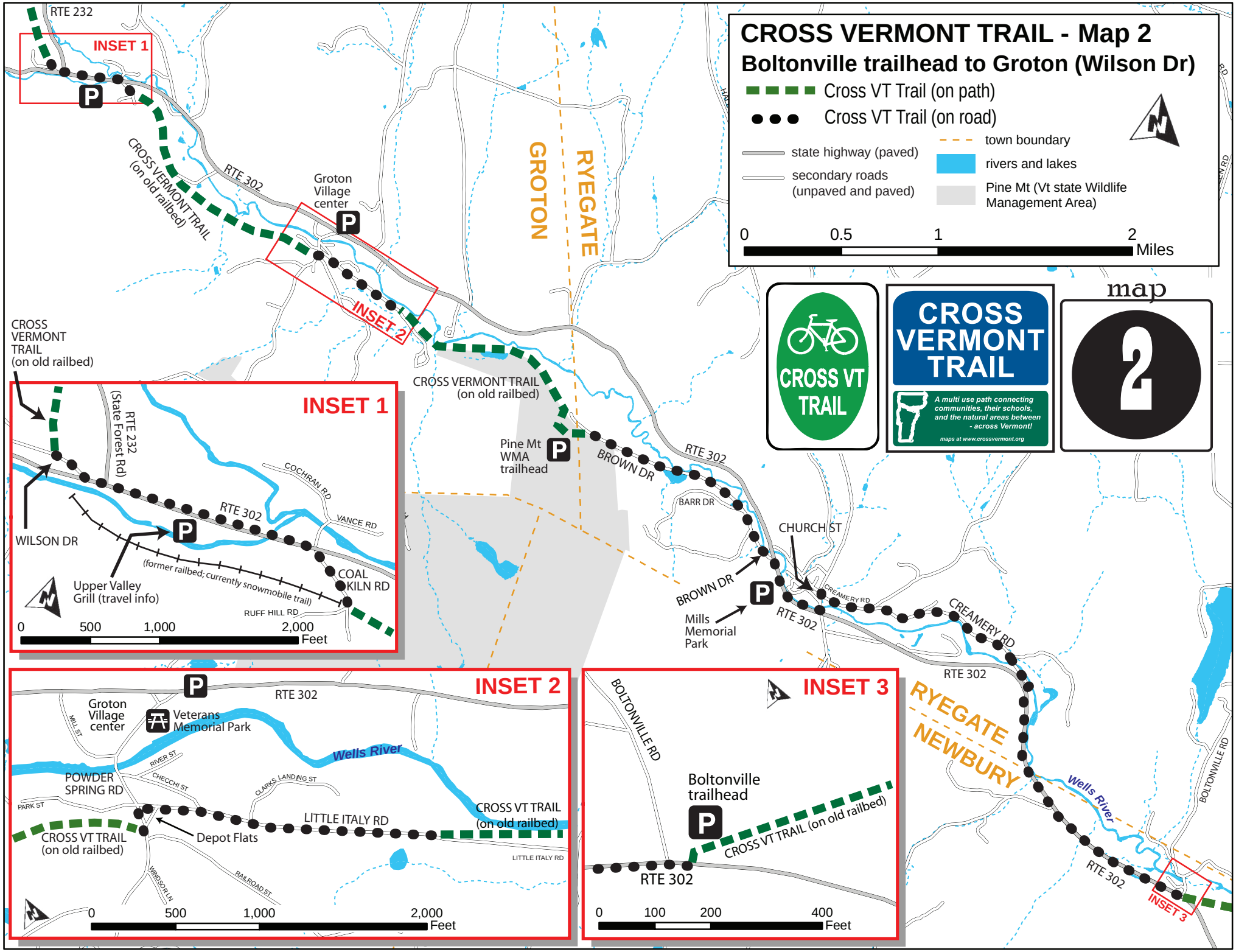


Wells River Watershed from Basin 14 Water Quality Management Plan by VT ANR

Cross Vermont Trail follows the Wells River to its source in Groton State Forest. The river runs about 20 miles, draining 100 square miles. The route of the river forms a naturally gradual grade. The 19th century builders of the Montpelier-Wells River Railroad followed the river to take advantage of this. Today, the trail follows the old railbed and the river to enjoy the same easy grade.


CROSS VERMONT TRAIL - Map 2
Boltonville trailhead to Groton (Wilson Dr)
Cross VT Trail (on path)
Cross VT Trail (on road)
town boundary
state highway (paved)
rivers and lakes
secondary roads (unpaved and paved)
Pine Mt (Vt state Wildlife Management Area)
0 0.5 1 2 Miles
CROSS VT TRAIL
CROSS VERMONT TRAIL
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maps at www.crossvermont.org
map 2
INSET 1
INSET 2
INSET 3
RTE 232
RTE 302
CROSS VERMONT TRAIL (on old railbed)
Groton Village center
GROTON
RYEGATE
Pine Mt WMA trailhead
BROWN DR
BARR DR
CHURCH ST
CREAMERY RD
Mills Memorial Park
NEWBURY
Wells River
BOLTONVILLE RD
RTE 232 (State Forest Rd)
COCHRAN RD
VANCE RD
WILSON DR
Upper Valley Grill (travel info)
(former railbed; currently snowmobile trail)
COAL KILN RD
RUFF HILL RD
0 500 1,000 2,000 Feet
Veterans Memorial Park
MILL ST
RIVER ST
CHECCHI ST
CLARKS LANDING ST
POWDER SPRING RD
PARK ST
LITTLE ITALY RD
Depot Flats
WINDSOR LN
RAILROAD ST
Boltonville trailhead
0 100 200 400 Feet

Cross Vermont Trail *cue sheet*

Map 2

Boltonville trailhead to
Groton (Wilson Dr) (8.37 miles)

go	for	on	type	srfc	at mile
R	1.55	Rte 302 *(Boltonville Trailhead)*	road	paved	4.02
	•	Newbury/Ryegate town line			5.22
R	1.35	Creamery Rd			5.57
L	0.10	Church St			6.92
R	0.42	Rte 302			7.02
	•	pass Mills Memorial Field; parking, baseball			7.23
L	0.33	Brown Dr		gravel	7.44
R	1.10	Brown Dr p*ass Barr Dr*			7.77
S	0.07	Pine Mt Wildlife Area parking lot and trailhead *pass farm buildings on north side, pass trail to wildlife area on south*	trail		8.87
S	1.24	Cross Vt Trail *on old railbed*			8.94
S	0.35	Little Italy Rd	road	paved	10.18
L	0.02	Powder Spring Rd *Groton Village center 0.16 mi north, parking*			10.53
R	1.40	Cross Vt Trail *on old railbed*	trail	gravel	10.55
R	0.10	Coal Kiln Rd	road		11.95
L	0.34	Rte 302		paved	12.05
	•	pass Upper Valley Grill; parking			12.25
	•	pass Rte 232			12.37
	•	jct with Wilson Dr			12.39

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distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 2

Groton (Wilson Dr) to
Boltonville trailhead (8.37 miles)

go	for	on	type	srfc	at mile
L	0.34	Rte 302 *at Wilson Dr*	road	paved	78.43
	•	pass Rte 232			78.45
	•	pass Upper Valley Grill; parking			78.57
R	0.10	Coal Kiln Rd		gravel	78.77
L	1.40	Cross Vt Trail *on old railbed*	trail		78.87
L	0.02	Powder Spring Rd *Groton Village center 0.16 mi north, parking*	road	paved	80.27
R	0.35	Little Italy Rd			80.29
L	1.24	Cross Vt Trail *on old railbed*	trail	gravel	80.64
S	0.07	Pine Mt Wildlife Area parking lot and trailhead *pass farm buildings on north side, pass trail to wildlife area on south*			81.88
S	1.10	Brown Dr *on old railbed*	road		81.95
L	0.33	Brown Dr *pass Barr Dr*			83.05
R	0.42	Rte 302		paved	83.38
	•	pass Mills Memorial Field; parking, baseball			83.59
L	0.10	Church St			83.80
R	1.35	Creamery Rd			83.90
L	1.55	Rte 302			85.25
	•	Newbury/Ryegate town line			85.60
	•	Cross Vt Trail on old railbed (Boltonville Trailhead)			86.80

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River Corridors

Along the 3 Cross Vermont Trail

A bike trail is wider than a bike tire. Room is needed for handlebars and arms akimbo. Bike trails switchback, wind to keep an easy grade. Rivers are like that, too.

Dynamic Equilibrium

Notice, the river corridor is bigger than the river channel (where you see the water running most days.) About six times bigger, as a rule of thumb.

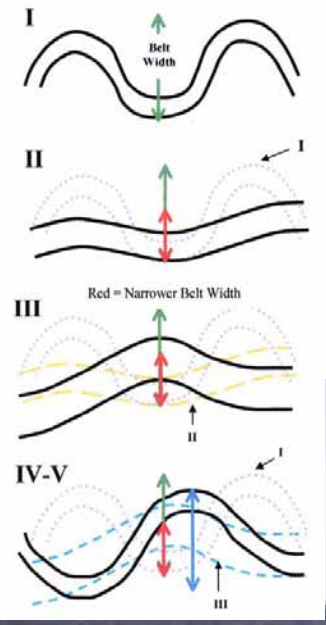
Why so big? 3 reasons.

Meander belt. Not just for water, rivers are also flows of rock and dirt. Within a defined area the water winds and swirls in slow motion with the earth and stone also moving along the corridor. While this goes on in a healthy corridor the channel location may gradually change, but the channel size is stable.

Floodplain. Where high water spreads out, stored for slow release.

Streambank vegetation. A lush buffer tempers flooding and meandering, helping them to occur at moderate rates. Also, logs that fall into the stream add useful structure to the streambed, which functions best with some roughness. Unevenness baffles the water, providing an outlet for its energy. (All this makes for good wildlife habitat, too.)

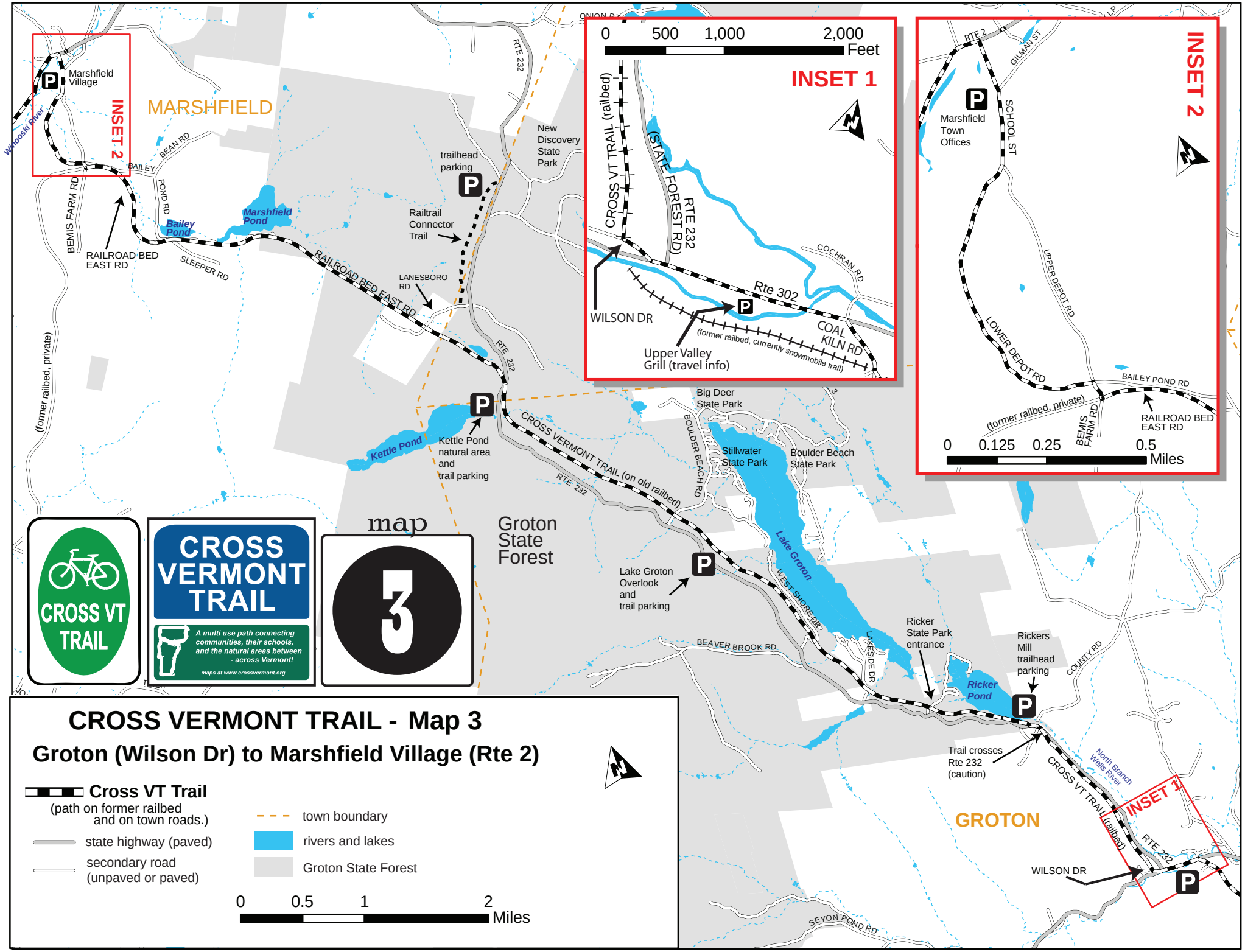
Over time, flowing water changes course and reshapes the land within a defined corridor.



source VT DEC

On a practical note, rivers that have access to their full corridors in enough places inflict less damage, from flooding and erosion, on roads and buildings unavoidably in their corridors elsewhere.


CROSS
VERMONT
TRAIL


CROSS VERMONT TRAIL - Map 3
Groton (Wilson Dr) to Marshfield Village (Rte 2)
Cross VT Trail
(path on former railbed and on town roads.)
state highway (paved)
secondary road (unpaved or paved)
town boundary
rivers and lakes
Groton State Forest
0 0.5 1 2 Miles
CROSS VERMONT TRAIL
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maps at www.crossvermont.org
CROSS VT TRAIL
map 3
INSET 1
INSET 2
MARSHFIELD
GROTON
Groton State Forest
Marshfield Village
Marshfield Town Offices
trailhead parking
Railtrail Connector Trail
New Discovery State Park
Bailey Pond
Marshfield Pond
Kettle Pond
Kettle Pond natural area and trail parking
Lake Groton Overlook and trail parking
Big Deer State Park
Stillwater State Park
Boulder Beach State Park
Lake Groton
Ricker State Park entrance
Ricker Pond
Rickers Mill trailhead parking
Trail crosses Rte 232 (caution)
Upper Valley Grill (travel info)
Rte 302
COAL KILN RD
(former railbed, currently snowmobile trail)
WILSON DR
COCHRAN RD
CROSS VT TRAIL (railbed)
(STATE FOREST RD)
RTE 232
RAILROAD BED EAST RD
BAILEY
BEAN RD
POND RD
BEMIS FARM RD
SLEEPER RD
LANESBORO RD
CROSS VERMONT TRAIL (on old railbed)
BOULDER BEACH RD
WEST SHORE DR
LAKESIDE DR
BEAVER BROOK RD
COUNTY RD
SEYON POND RD
RTE 2
GILMAN ST
SCHOOL ST
UPPER DEPOT RD
LOWER DEPOT RD
BAILEY POND RD
(former railbed, private)
Wiitooski River
North Branch Wells River
0 500 1,000 2,000 Feet
0 0.125 0.25 0.5 Miles

Cross Vermont Trail *cue sheet*

Map 3

Groton (Wilson Dr) to Marshfield Village (Rte 2) (12.74 miles)

east to west

go	for	on	type	srfc	at mile
R	0.02	Wilson Dr	road	gravel	12.39
R	1.54	Cross Vt Trail *on old railbed*	trail		12.41
	•	pass jct with snowmobile trail			12.51
L	0.03	Rte 232	road	paved	13.95
R	6.50	Cross Vt Trail *on old railbed*	trail	gravel	13.98
	•	pass residence; trail shares driveway.			13.99
	•	pass jct with snowmobile trail			14.01
	•	Groton State Forest information kiosk; parking			14.05
	•	Ricker Pond; headwaters of North Branh Wells River			14.07
	•	pass boundary of Ricker Pond State Park campground			14.28
	•	pass entrance station to campground; continue straight on Cross Vt Trail (railbed)			14.96
	•	pass Cross Cut Trail on south side; four season multi use trail; connects to Depot Brook Trail			15.31
	•	cross Lakeside Dr			15.45
	•	pass Beaver Brook trail on south side; four season multi use trail; connects to Silver Ledge Trail			15.79
	•	cross West Shore Dr			16.05
	•	pass spur trail on left, climbs steeply 0.16 mi to scenic overlook, and trailhead parking area on Rte 232			17.2
	•	cross Boulder Beach Rd			17.68
	•	pass spur trail on south, 400 ft. to parking at Kettle Pond			18.53
	•	bridge over Stillwater Brook			18.54
	•	Groton/Peacham town line			19.39
	•	cross Rte 232; Winooski RIver Watershed to west, Wells River Watershed to east			19.6
	•	Peacham/Marshfield town line			20.3
S	2.39	Railroad Bed East Rd *on old railbed; pass Lanesboro Rd which leads 0.33 mi north to Rail Trail Connector Trail, another 0.9 mi to parking at Rte 232*	road		20.48
	•	pass Marshfield Pond			22.46
L	1.12	Railroad Bed East Rd; *pass Bailey Pond Rd on north side; parking (limited)*			22.87
R	0.01	Bemis Farm Rd			23.99
L	0.88	Lower Depot Rd			24.00
S	0.25	School St		paved	24.88
	•	Marshfield Town Offices; parking, library, playground			25
	•	jct Rte 2			25.13

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distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 3

Marshfield Village (Rte 2) to Groton (Wilson Dr) (12.74 miles)

west to east

go	for	on	type	srfc	at mile
R	0.25	School St	road	paved	65.69
	•	Marshfield Town Offices; parking, library, playground			65.82
R	0.88	Lower Depot Rd		gravel	65.94
R	0.01	Bemis Farm Rd			66.82
L	1.12	Railroad Bed East Rd *on old railbed*			66.83
S	2.39	Railroad Bed East Rd *pass Bailey Pond Rd on north side; parking (limited)*			67.95
	•	pass Marshfield Pond			68.36
S	6.50	Railroad Bed East Rd *on old railbed; pass Lanesboro Rd which leads 0.33 mi north to Rail Trail Connector Trail, another 0.9 mi to parking at Rte 232*	trail		70.34
	•	Peacham/Marshfield town line			70.52
	•	cross Rte 232; Winooski RIver Watershed to west, Wells River Watershed to east			71.22
	•	Groton/Peacham town line			71.43
	•	bridge over Stillwater Brook			72.28
	•	pass spur trail on south, 400 ft. to parking at Kettle Pond			72.29
	•	cross Boulder Beach Rd			73.14
	•	pass spur trail on left, climbs steeply 0.16 mi to scenic overlook, and trailhead parking area on Rte 232			73.62
	•	cross West Shore Dr			74.77
	•	pass Beaver Brook trail on south side; four season multi use trail; connects to Silver Ledge Trail			75.03
	•	cross Lakeside Dr			75.37
	•	pass Cross Cut Trail on south side; four season multi use trail; connects to Depot Brook Trail			75.51
	•	pass entrance station to campground; continue straight on Cross Vt Trail (railbed)			75.86
	•	pass boundary of Ricker Pond State Park campground			76.54
	•	Ricker Pond; headwaters of North Branch Wells River			76.75
	•	Groton State Forest information kiosk; parking			76.77
	•	pass jct with snowmobile trail			76.81
	•	pass residence; trail shares driveway			76.83
L	0.03	Rte 232	road	paved	76.84
R	1.54	Cross Vt Trail *on old railbed*	trail	gravel	76.87
	•	pass jct with snowmobile trail			78.31
L	0.02	Wilson Dr	road		78.41
	•	jct Rte 302			78.43

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distances shown in miles (0.01 mile = about 50 feet)
You can help build more trail! www.crossvermont.org 802-498-0079

Working Landscape

Along the 4 Cross Vermont Trail

Rickers Mill, at the outlet of Ricker Pond, was the site of a working lumber mill for nearly 200 years - from the 1780s through the 1960s. The remnants of the mill dam can still be seen. Other mills operated at the outlet of Lake Groton. Forestry and logging continue to this day along the trail route.

"To supply this thriving business at the foot of the lake the men cut trees all winter. The first sounds a camper might hear in the early spring when there was still some snow on the ground were the bells jingling and the teamsters shouting as they guided their horses slowly plodding their way along the Coldwater Brook log road or tow path. The logs were dragged to the Northeast shore and yarded at a place known as "the Log Pile." Here was a long beach with shallow sand bottom extending quite a distance out. A steamer hauled the logs from this location down to the mill twice daily. Aside from the weather this steamer and its reliable itinerary were the subjects most mentioned daily by those vacationing beside the pond."

- from Camping at the Pond by Marion Proudfoot

Geology

Along the 5 Cross Vermont Trail

Mountains and Rivers without end.

Setting the stage

Rocks. Over the life the earth, billions of years, the rocks around you were formed and journeyed through a "lavalamp" world uplifting as mountains, sinking into seas, forming continents and drifting over the face of the planet from the equator to here.

Regions. By a few hundred million years ago, the outline of the landscape was set roughly as we see it today. In eastern Vermont the "piedmont" is a plateau cut by streams into an undulating series of steep sided valleys. The spine of the state is the ridge of the Green Mountains, aligned south to north, rising steeply on either side, interrupted only with water gaps carved through by the even more ancient rivers running east to west, including the Winooski. Finally the Champlain lowlands, a trough between the Greens and the Adirondack Mountains beyond.

Glaciers

Glaciers are persistent. Bodies of ice that form where accumulation of snow each winter exceeds melting each summer. They grow year to year, eventually to cover continents, when they are called "ice sheets." In today's world, ice sheets still exist in Greenland and Antarctica. About 2 million years ago, a complex interaction of events occurred which lead to a long period of cold weather, and the beginning of the ice sheet that covered Vermont.

Glaciers flow. Once the ice becomes thick, glaciers start to move. This process begins when they are 160 feet thick. The ice that flowed over Vermont was over 5000 feet thick. It first formed in the mountains of eastern Canada, advance tendrils flowed south, tracing upstream river valleys, through mountain passes, and finally, piling up and overtopping even the summit of Mt. Mansfield. Eventually, our ice sheet made it as far south as Long Island. When the ice retreated it melted from the mountain tops first, then gradually back down the valleys to the north. Over the course of nearly 2 million years glaciers have spread south during colder periods, then partially retreated north during warmer intervals, and back again, many times. The most recent retreat was just 12,000 years ago. The action of the glaciers shaped the ancient landscape of mountains and rivers with the surface details we see today.

But, if you really want to get to know the rocks of Vermont one by one, try a trail building work party!

"I have a friend who feels sometimes that the world is hostile to human life--he says it chills us and kills us. But how could we be were it not for this planet that provided our very shape? Two conditions--gravity and a livable temperature range between freezing and boiling--have given us fluids and flesh. The trees we climb and the ground we walk on have given us five fingers and toes. The "place" (from the root plat, broad, spreading, flat) gave us far-seeing eyes, the streams and breezes gave us versatile tongues and whorly ears. The land gave us a stride, and the lake a dive. The amazement gave us our kind of mind. We should be thankful for that, and take nature's stricter lessons with some grace." - Gary Snyder

Glacial Landscape

Along the 6 Cross Vermont Trail

A wall of ice, a mile thick, everywhere, recently.

The land you see all around today is littered with markers left by the glaciers that covered Vermont for millions of years, and which melted just 12,000 years ago. In Groton especially look for the low hills, rounded smooth on the north and broken off on the south as the ice flowed over, plucking; the frequent small lakes, ponds and marshes gouged and dammed by sand and gravel left behind; the large boulder "erratics" scattered through the woods, garnered and slowly floated from the north.

Owls Head Mt.

Kettle Pond, from summit of Owls Head

Watershed Divide

Along the 7 Cross Vermont Trail

Smooth Transition

At Marshfield, a little past the crossing of Rte 232, the waters beside the trail flow-west, to Lake Champlain, rather than east to the Connecticut. The easy transition from the Wells River watershed to the Winooski River watershed is what makes this a natural trail route across the state, as it was for the Montpelier - Wells River rail-road, and many others before that.

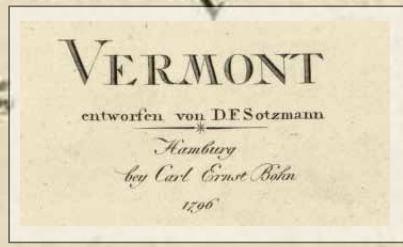
Historic Passage

"This much is certain, that in 1725, Capt. Benjamin Wright of Northampton, with a scouting party of sixty men, ascended the Connecticut to the mouth of the Wells River, which they followed, and having passed several ponds, crossed the height of land and descended Winooski River to Lake Champlain, returning by the same course. The journal of their expedition expressly mentions 'the fort at the mouth of the Wells River.' Many descendents of this Capt. Benjamin Wright are now living in Newbury. Other evidence of early visits to the Cohase country is found in the narratives of those who were taken capitve by Indians [during the war between England and France] and hurried through the wilderness. An ancient map, made about the time of the old French war, gives the correct course of both the Connecticut and Wells rivers, and says - Up both these rivers many captives have been carried to Canada."

- from A History of Newbury by Frederic P. Wells, 1902

"Joseph Paul Denis (b. 1832, d. 1928), Western Abenaki, making birchbark canoe models."

- from Handbook of North American Indians edited by William C. Sturtevant, 1978.



1796 map of VT from US Library of Congress

Railroad

Along the
8 Cross Vermont Trail

First Train: 1873

The Montpelier & Wells River Rail Road was built as a cut off between two larger lines.

The Central Vt RR runs along the Winooski from Burlington to Montpelier, then turns south along the Dog River, to cross the watershed divide and follow the White River down to White River Junction.

The Connecticut & Passumpsic/ Boston, Concord, & Montreal lines run up the Connecticut River valley through Wells River village.

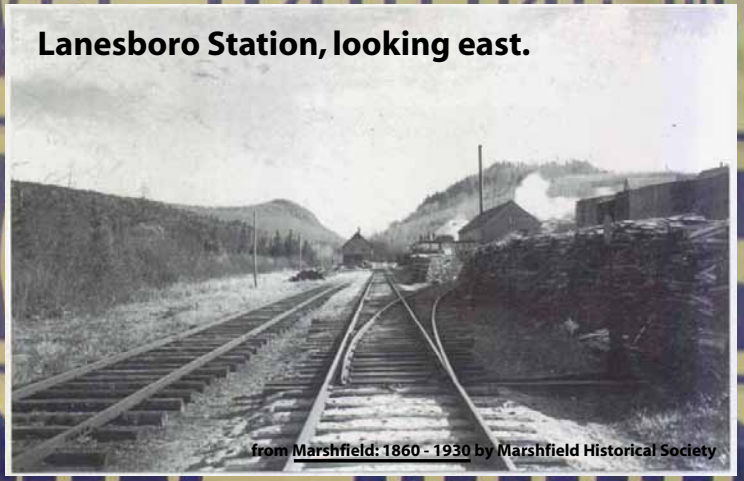
The main business was hauling granite out from Barre; but much else was carried, too.

Daily Passenger Trains:
- 6 per day in 1894
- 8 per day in 1916
- 4 per day in 1922
- 2 per day in 1933

Last Train: November 15, 1956

- from Rail Lines of Northern New England by Robert M. Lindsell

Lanesboro Station, looking east.



from Marshfield: 1860 - 1930 by Marshfield Historical Society

Granite milemarker "Wells River 29 miles".

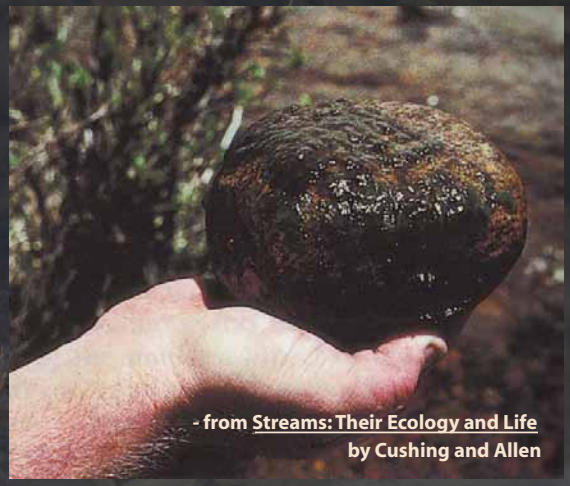
image Vermont Historic Society

River Continuum

Along the 9 Cross Vermont Trail

Scientists who study the ecology of flowing waters classify each river as having three parts, which flow one to the next, in continuum. Because they are describing the web of life, the divisions are keyed to major changes in the base of the food chain. As you travel the length of the river, look for these three regions.

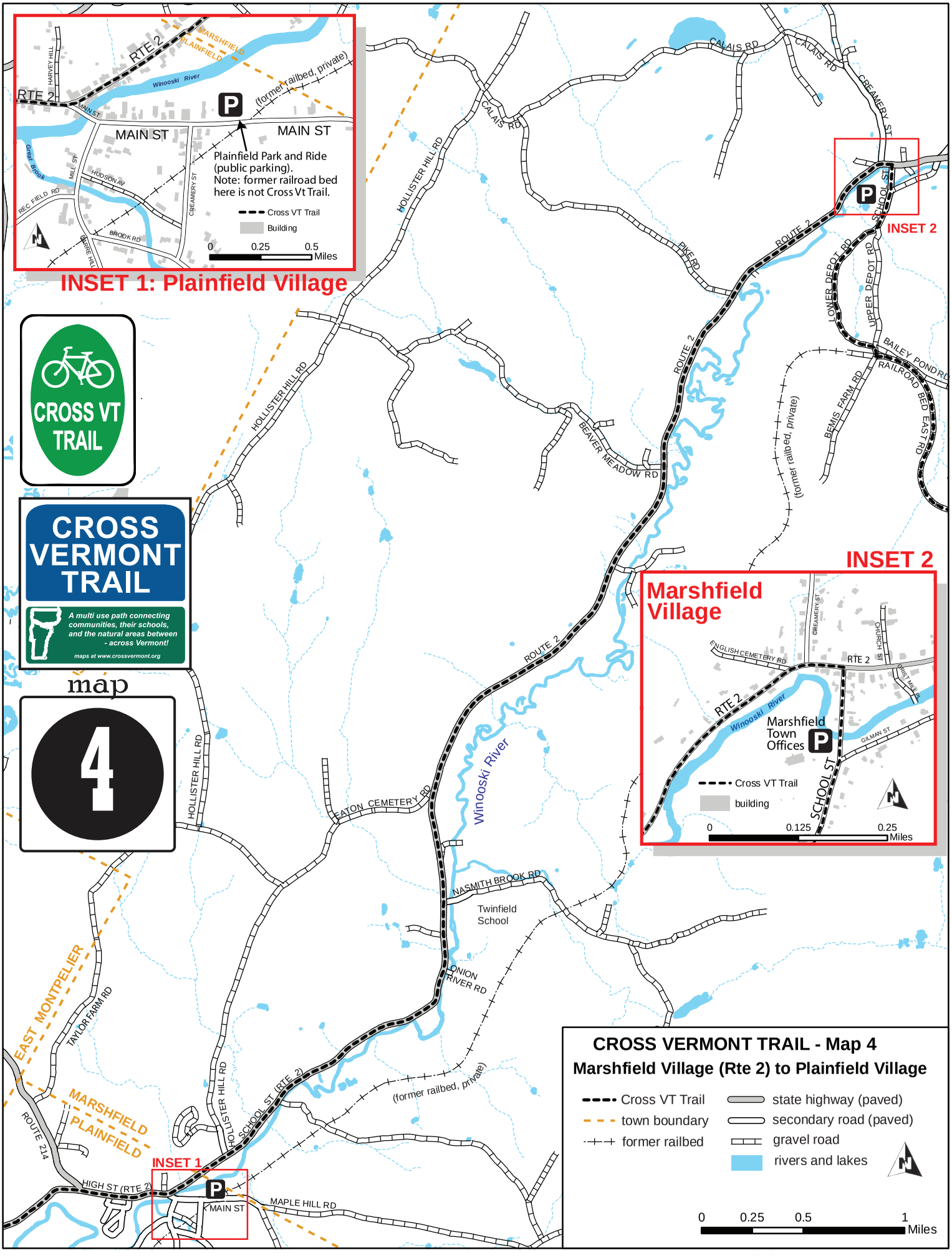
Headwaters. Narrow, fast water, fully shaded by forest, rocky bed. Base of the food chain is land plants that fall to the water. For example, a tree leaf in a stream is quickly colonized by bacteria and fungi who convert the non-nutritious leaf matrix into a rich mass, palatable to aquatic animals - "like making peanut butter from a cracker."



- from Streams: Their Ecology and Life by Cushing and Allen

Mid-reaches. Stream is wider, bottom is well lit, temperature warms, nutrients from upstream concentrate. All of this leads to the growth of a (tiny) jungle of plants, bacteria, and fungi bound together in a matrix inhabited by protozoans and micrometazoans. This BIOFILM coats rocks in the streambed (that's what makes them slippery!) Insects graze the biofilm and fish hunt the insects. The mid-reach is the most productive part of the river; many of the most famous trout fishing areas are in the mid-reaches.

Lower reaches. Large rivers, deep waters, slow flowing. Light does not reach the bed, which is clogged with silt. So the biofilm jungle does not grow here. Most animals live by collecting food that floats in from upstream.


INSET 1: Plainfield Village
Plainfield Park and Ride (public parking). Note: former railroad bed here is not Cross Vt Trail.
Cross VT Trail
Building
0 0.25 0.5 Miles
RTE 2
MAIN ST
Winooski River
MARSHFIELD
PLAINFIELD
(former railbed, private)
HARVEY HILL
MILL ST
HUDSON AV
CREAMERY ST
REC FIELD RD
BROOK RD
Great Brook
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map 4
INSET 2
Marshfield Village
ENGLISH CEMETERY RD
CHURCH ST
FIRST HILL
GILMAN ST
Marshfield Town Offices
Cross VT Trail
building
0 0.125 0.25 Miles
CALAIS RD
CREAMERY ST
SCHOOL ST
ROUTE 2
PIKE RD
LOWER DEPOT RD
UPPER DEPOT RD
BAILEY POND RD
RAILROAD BED EAST RD
BEMIS FARM RD
BEAVER MEADOW RD
HOLLISTER HILL RD
EATON CEMETERY RD
NASMITH BROOK RD
Twinfield School
ONION RIVER RD
EAST MONTPELIER
TAYLOR FARM RD
ROUTE 214
HIGH ST (RTE 2)
MAPLE HILL RD
SCHOOL ST (RTE 2)
CROSS VERMONT TRAIL - Map 4
Marshfield Village (Rte 2) to Plainfield Village
Cross VT Trail
town boundary
former railbed
state highway (paved)
secondary road (paved)
gravel road
rivers and lakes
0 0.25 0.5 1 Miles

Cross Vermont Trail *cue sheet*

Map 4

Marshfield Village (Rte 2) to Plainfield Village (6.96 miles)

go	for	on	type	srfc	at mile
L	6.96	Rte 2	road	paved	25.13
	•	pass Nasmith Brook Road and Twinfield Union H.S.			29.87
	•	Plainfield/Marshfield town line			31.9
	•	pass Main St, Plainfield Village			32.09

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
You can help build more trail! www.crossvermont.org 802-498-0079

Cross Vermont Trail *cue sheet*

Map 4

Plainfield Village to Marshfield Village (Rte 2) (6.96 miles)

go	for	on	type	srfc	at mile
S	6.96	Rte 2 *pass Main St, Plainfield Village, 0.25 mi south to public parking*	road	paved	58.73
	•	Plainfield/Marshfield town line			58.92
	•	pass Nasmith Brook Road and Twinfield Union H.S.			60.95
	•	jct School St			65.69

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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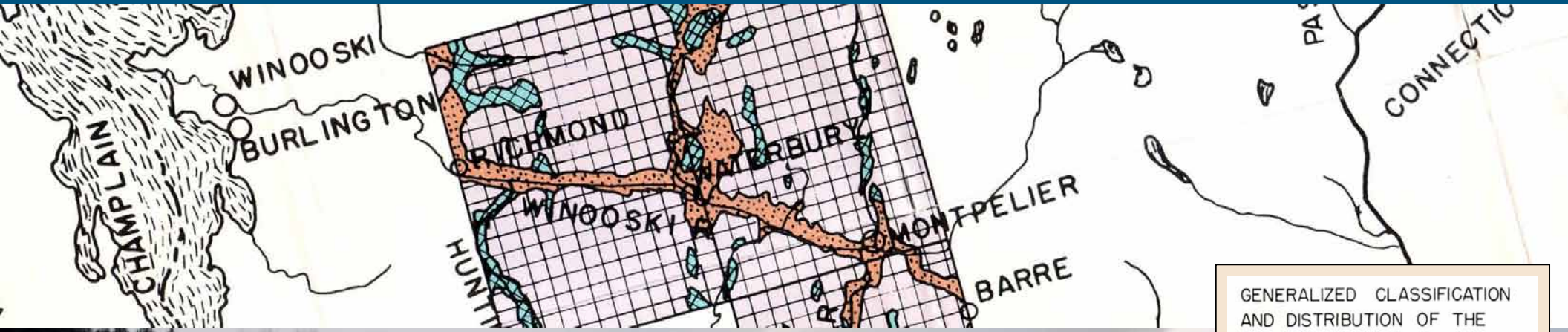
Lake Winooski

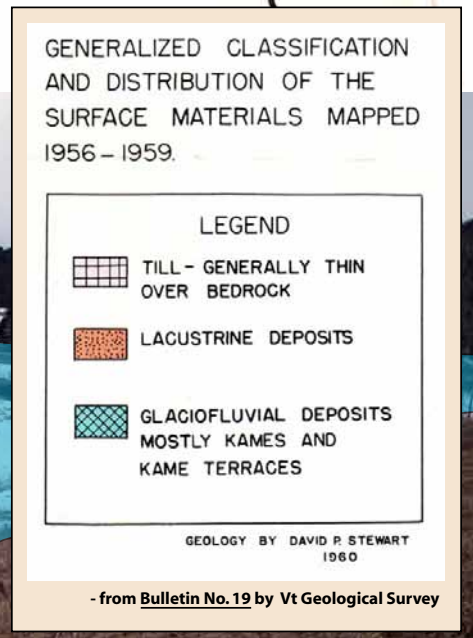
Along the 10 Cross Vermont Trail



10,000 BC - 9,000 BC

Climbing the hill from Martin Covered Bridge takes you to the shoreline of glacial Lake Winooski.

Lacustrine means lake. Geologists mapping the soils of Vermont years ago noticed the soil in the river valley is like the soil at the bottoms of modern lakes. The map of these "lacustrine deposits" must show the location of a lake that drained away long ago. At the end of the Ice Age, stagnant glaciers lingered in the valleys. The melting started at the headwaters and worked down stream. The retreating glacier was a dam; a cold muddy reservoir pooled up behind it. As the whole system moved down stream the name geologists use for the resulting lake changes from Lake Winooski, to Lake Mansfield, to Lake Vermont in the Champlain Valley. The pooled lakes followed after the retreating ice for about 1,000 years. In the end, the glacier melted so much the dam broke. The entire lake drained in one torrential day.



- from Bulletin No. 19 by Vt Geological Survey

Marshfield Mussels

Along the 11 Cross Vermont Trail

A season of excitement and travel; then a long, settled life at home.

Mussels live upstream of the Martin Covered Bridge. “Looking up" at you today are some who would have also seen the horse drawn wagons hauling hay across this same bridge. Individuals can live over 100 years, encased in their hard shell, anchored with a muscular foot.

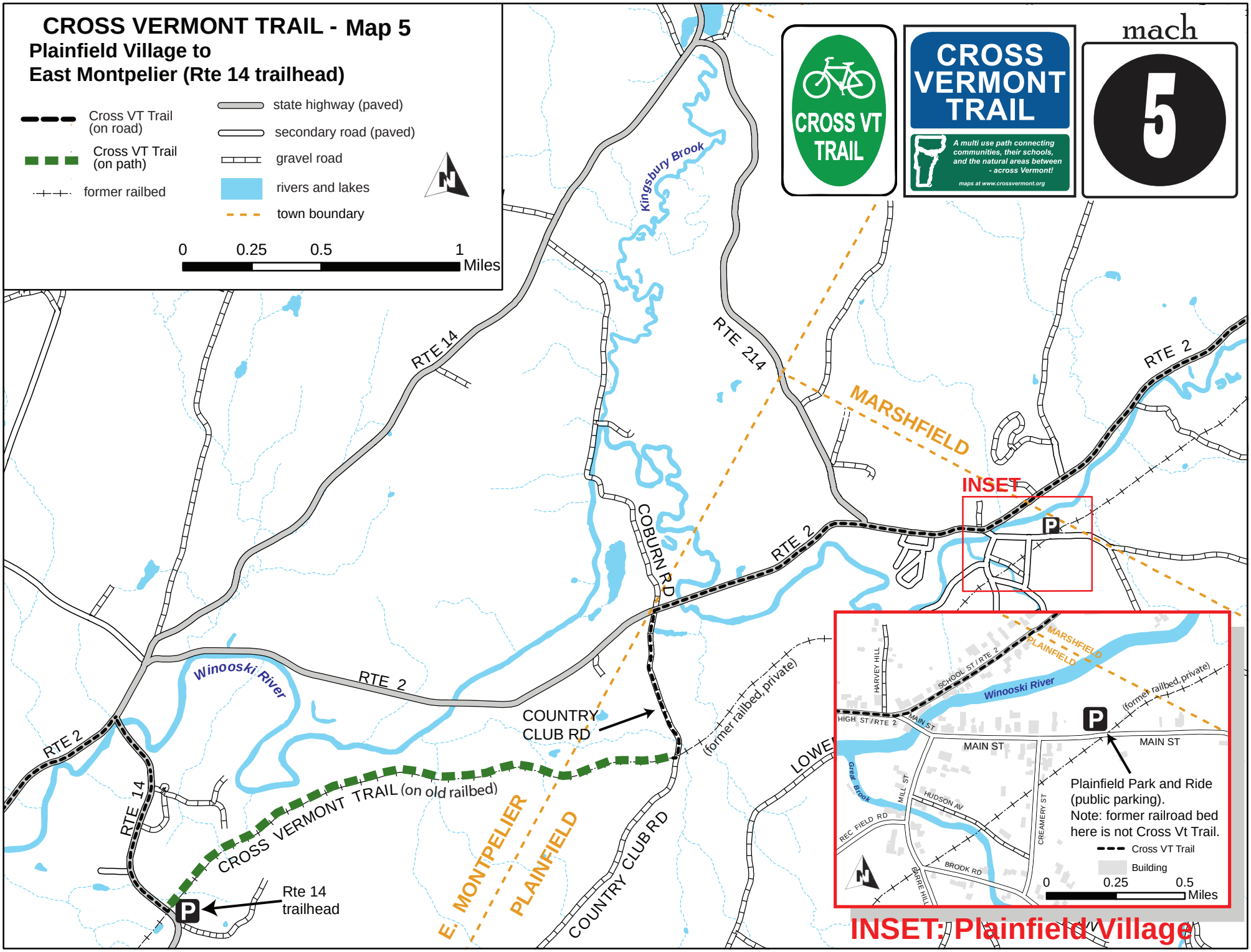
Improbably, these "stuck in the mud" creatures spend their first year of life as tiny hitch hikers inside the gills of brook trout, soaring. When mothers have a large batch of babies, they lure trout close, and cast their young up, who then spend months travelling with the fish. Once the juveniles are grown sufficiently, they drop off and set up permanent homes of their own on the river bottom. This relationship does not harm the fish, and it helps the young mussels find "fresh pastures" away from their parents.

Despite their individual adventuresomeness and fortitude, as a species they are threatened. In truth, they are not major players in the ecosystem of flowing waters here. If they finally disappear, it's likely most people would not notice. However, their presence indicates a robust habitat, with clean water, unclogged streambed, and healthy trout.
Protecting the mussel protects in turn a whole natural system.

photo I. Boldie

- from Brehm's Life of Animals

Do Not Disturb!
Collecting or bothering native mussels is illegal in Vermont.


CROSS VERMONT TRAIL - Map 5
Plainfield Village to
East Montpelier (Rte 14 trailhead)
Cross VT Trail (on road)
Cross VT Trail (on path)
former railbed
state highway (paved)
secondary road (paved)
gravel road
rivers and lakes
town boundary
0 0.25 0.5 1 Miles
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
mach 5
Kingsbury Brook
RTE 14
RTE 214
MARSHFIELD
RTE 2
INSET
COBURN RD
Winooski River
COUNTRY CLUB RD
(former railbed, private)
CROSS VERMONT TRAIL (on old railbed)
E. MONTPELIER
PLAINFIELD
Rte 14 trailhead
HARVEY HILL
SCHOOL ST / RTE 2
HIGH ST / RTE 2
MAIN ST
Great Brook
MILL ST
HUDSON AV
REC FIELD RD
CREAMERY ST
BROOK RD
BARRE HILL
Plainfield Park and Ride (public parking).
Note: former railroad bed here is not Cross Vt Trail.
Cross VT Trail
Building
0 0.25 0.5 Miles
INSET: Plainfield Village

Cross Vermont Trail *cue sheet*

Map 5

Plainfield Village to
East Montpelier (Rte 14 trailhead) (4.07 miles)

go	for	on	type	srfc	at mile
S	1.36	Rte 2 *pass Main St, Plainfield Village, 0.25 mi south to public parking*	road	paved	32.09
L	0.58	Country Club Rd		gravel	33.45
R	0.21	Cross Vt Trail *on old railbed; shared with residential drive*	trail		34.03
S	1.92	Cross Vt Trail *on old railbed*			34.24
	•	Plainfield/East Montpelier town line			34.47
	•	pass jct snowmobile trail.			34.79
	•	Rte 14 trailhead, parking			36.16

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 5

East Montpelier (Rte 14 trailhead) to
Plainfield Village (4.07 miles)

go	for	on	type	srfc	at mile
L	1.92	Cross Vt Trail *on old railbed; trailhead parking*	trail	gravel	54.66
	•	pass jct snowmobile trail.			56.03
	•	Plainfield/East Montpelier town line			56.35
S	0.21	Cross Vt Trail *on old railbed shared with residential drive*			56.58
L	0.58	Country Club Rd	road		56.79
R	1.36	Rte 2		paved	57.37
	•	Rte 2 pass Main St, Plainfield Village			58.73

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distances shown in miles (0.01 mile = about 50 feet)
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Watershed Snapshot

Along the 12 Cross Vermont Trail

CROSS VERMONT TRAIL

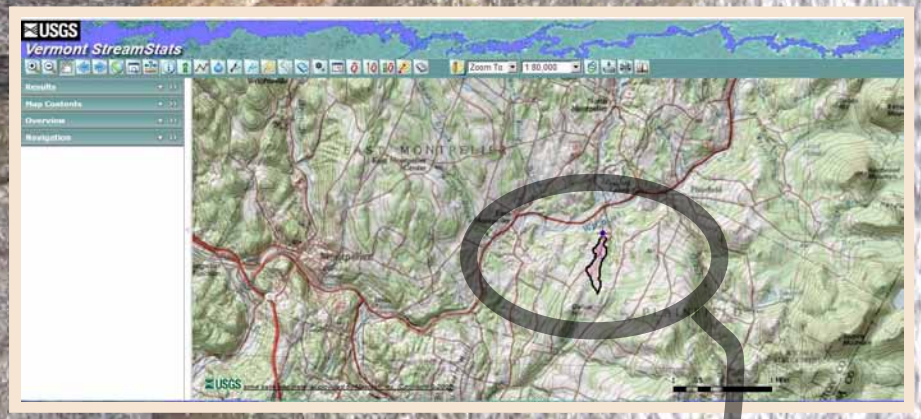
Hills and Mountains sloping to water.
What I call a valley some call a funnel.
More precisely, watershed.
More prosaically drainage basin.

"Shed." An old english word meaning something like "organize". Maybe not best for some modern uses. But a good word to sort and delineate "the whole gathering ground of a river system."

- adapted from In the Land of the Wild Onion by Charles Fish

The US Geological Service has an online tool, "Streamstats", that allows anyone to take a snap shot of the watershed upstream from any point.

Beneath the trail, a few minutes west of Country Club Rd in Plainfield, a small stream shuffles through an old railroad culvert. Turns out this unassuming creek drains 135 acres, and starts more than a mile uphill.



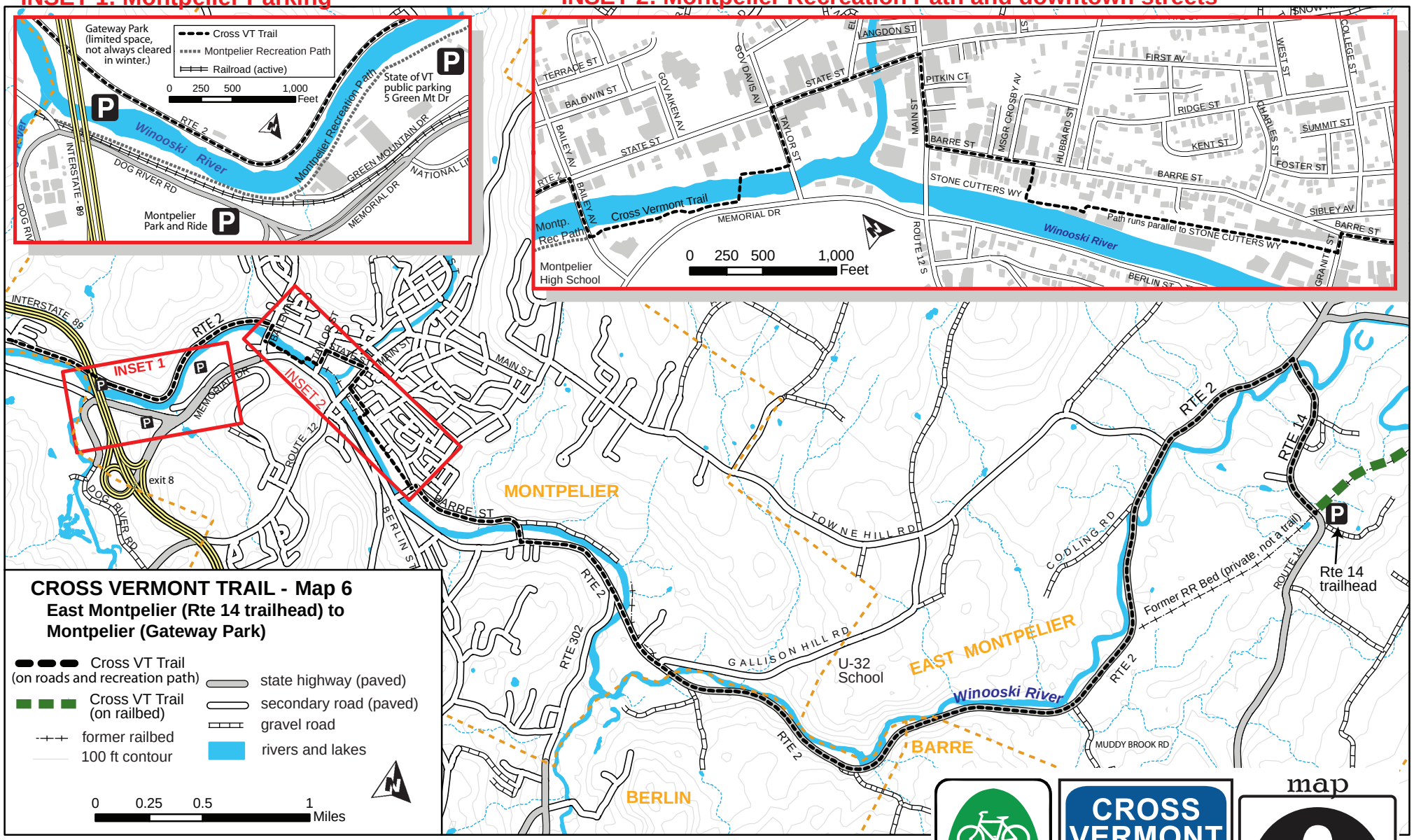
Pasture Legacy

Along the
13 Cross Vermont Trail

Deep in the woods along the trail, a bridge of massive granite blocks rests beneath the old railbed.

It's not a bridge over water. It's a bridge over cows. When the railroad was constructed, all these hills were clear of forest and open as pasture. Periodic underpasses allowed cattle to cross the tracks. Today they are great places to see old stone work that's still in good shape. Without streams to undermine them, they have survived better than the similarly built stone drains.

Historically, a massive amount of sediment washed off Vermont hills during the clearings of the 19th century. By some estimates, the valley floors were raised several feet with this fill material! Some, piled in the ancient flood plains, plagues the rivers below to this day. Denied full use of their flood plains, they are now more destructive elsewhere during storms. In some ways, the 19th century settlers of Vermont were like human glaciers; working landscape changes that are taking centuries to settle out. Also, they dropped these Barre granite blocks, erratically, though neatly, here in the midst of an East Montpelier hillside.


INSET 1: Montpelier Parking
INSET 2: Montpelier Recreation Path and downtown streets
Gateway Park (limited space, not always cleared in winter.)
Cross VT Trail
Montpelier Recreation Path
Railroad (active)
0 250 500 1,000 Feet
State of VT public parking 5 Green Mt Dr
Winooski River
Montpelier Recreation Path
RTE 2
INTERSTATE 89
DOG RIVER RD
GREEN MOUNTAIN DR
MEMORIAL DR
Montpelier Park and Ride
Montp. Rec Path
Cross Vermont Trail
Montpelier High School
LANGDON ST
TERRACE ST
BALDWIN ST
BAILEY AV
GOV AIKEN AV
GOV DAVIS AV
STATE ST
TAYLOR ST
MAIN ST
PITKIN CT
FIRST AV
WEST ST
COLLEGE ST
RIDGE ST
CHARLES ST
SUMMIT ST
KENT ST
FOSTER ST
BARRE ST
MSGR CROSBY AV
HUBBARD ST
STONE CUTTERS WY
Path runs parallel to STONE CUTTERS WY
SIBLEY AV
GRANIT ST
BERLIN ST
ROUTE 12 S
INSET 1
INSET 2
exit 8
ROUTE 12
MONTPELIER
TOWNE HILL RD
CODLING RD
Former RR Bed (private, not a trail)
ROUTE 14
Rte 14 trailhead
RTE 14
RTE 302
GALLISON HILL RD
U-32 School
EAST MONTPELIER
Winooski River
BARRE
MUDDY BROOK RD
BERLIN
CROSS VERMONT TRAIL - Map 6
East Montpelier (Rte 14 trailhead) to Montpelier (Gateway Park)
Cross VT Trail (on roads and recreation path)
Cross VT Trail (on railbed)
former railbed
100 ft contour
state highway (paved)
secondary road (paved)
gravel road
rivers and lakes
0 0.25 0.5 1 Miles
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map 6

Cross Vermont Trail *cue sheet*

Map 6

East Montpelier (Rte 14 trailhead) to Montpelier (Gateway Park) (9.33 miles)

go	for	on	type	srfc	at mile
R	0.82	Rte 14 *trailhead, parking*	road	paved	36.16
L	5.44	Rte 2			36.98
	•	East Montpelier/Barre Town town line			39.84
	•	Barre Town/Berlin town line			39.93
	•	Berlin/Montpelier town line			41.35
	•	pass Gallison Hill Road and U-32 H.S.			41.47
	•	roundabout at jct with Rte 302			41.87
R	0.64	Pioneer St			42.42
	•	name change Pioneer St to Barre St			42.52
L	0.04	Granite St			43.06
R	0.42	Montpelier Bike Path along Stonecutters Way	trail		43.10
R	0.03	Montpelier Bike Path across railroad tracks			43.52
L	0.15	Barre St	road		43.55
R	0.11	Main St			43.70
L	0.22	State St			43.81
L	0.08	Taylor St			44.03
R	0.29	Montpelier Bike Path along Winooski River	trail		44.11
R	0.08	Bailey Ave	road		44.40
L	1.01	Rte 2			44.48
	•	Rte 2 Gateway Park; Winooski River access; parking			45.49

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distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 6

Montpelier (Gateway Park) to East Montpelier (Rte 14 trailhead) (9.33 miles)

go	for	on	type	srfc	at mile
S	1.01	Rte 2 Gateway Park; Winooski River access; parking	road	paved	45.33
R	0.08	Bailey Ave			46.34
L	0.29	Montpelier Bike Path along Winooski River	trail		46.42
L	0.08	Taylor St	road		46.71
R	0.22	State St			46.79
L	0.11	Main St			47.01
R	0.15	Barre St			47.12
R	0.03	Montpelier Bike Path *pass beside municipal gym*	trail		47.27
L	0.42	Montpelier Bike Path along Stonecutters Way			47.30
L	0.04	Granite St	road		47.72
R	0.64	Barre St			47.76
	•	name change Barre St to Pioneer St			48.30
L	5.44	Rte 2			48.40
	•	roundabout at jct with Rte 302			48.95
	•	pass Gallison Hill Road and U-32 H.S.			49.35
	•	Berlin/Montpelier town line			49.47
	•	Barre Town/Berlin town line			50.89
	•	East Montpelier/Barre Town town line			50.98
R	0.82	Rte 14			53.84
	•	Cross Vt Trail on old railbed; trailhead parking			54.66

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distances shown in miles (0.01 mile = about 50 feet)
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Chemistry

Along the 14 Cross Vermont Trail

Looking for what you can't see.

Some things are easy to see. Geology is - the banks, boulders, rushing water. Wildlife is - the hovering dragon fly, the Beaver's tail slap. Between these there is a category of things you have to look harder to see, which are just as big in the story of the river.

Oxygen in the water. Warm water has less, cold more. Water with high levels of organics, like manure, has more bacteria, but less oxygen.

Acidity. Wildlife prefers less, which is why acid rain is a problem.

"Fertilizing" nutrients, like nitrogen and phosphorus.

A River Ethic.

Many volunteer and student groups make special trips to monitor these invisible aspects of the river. It helps keep tabs on the water health, it builds a "land ethic" in the community, and it's interesting.

Local students monitor this stretch of river, downhill from their school. They drive by this site daily, but many have never before gone down to the water and taken a hard look. Some comments sprinkled in their lab reports:

"I was surprised." *"We were shocked."* *"I had no idea."*

"Some feelings our group received from our site were not good including that fact that we could see noticeable debris in the water such as a bed spring and multiple tires."

photos Brian Slope

Just what is Phosphorus, anyhow?

Along the 15 Cross Vermont Trail

CROSS VERMONT TRAIL

Phosphorus is food for plants.

A nutrient which occurs in nature from many sources. It's also sometimes included in commercial fertilizer. On a bag of fertilizer, it's the middle number. Since it's in most soil already, naturally, bagged fertilizer often has a zero amount. But, this also means that excessive soil erosion is sort of like dumping a bag of fertilizer in the river.

When all this extra fertilizer accumulates at the bottom of the watershed, in the lake, it fuels "blooms" - thick and gooey - of algae and aquatic weeds. Some are toxic to humans, all spoil habitat for wildlife.

Political Watershed

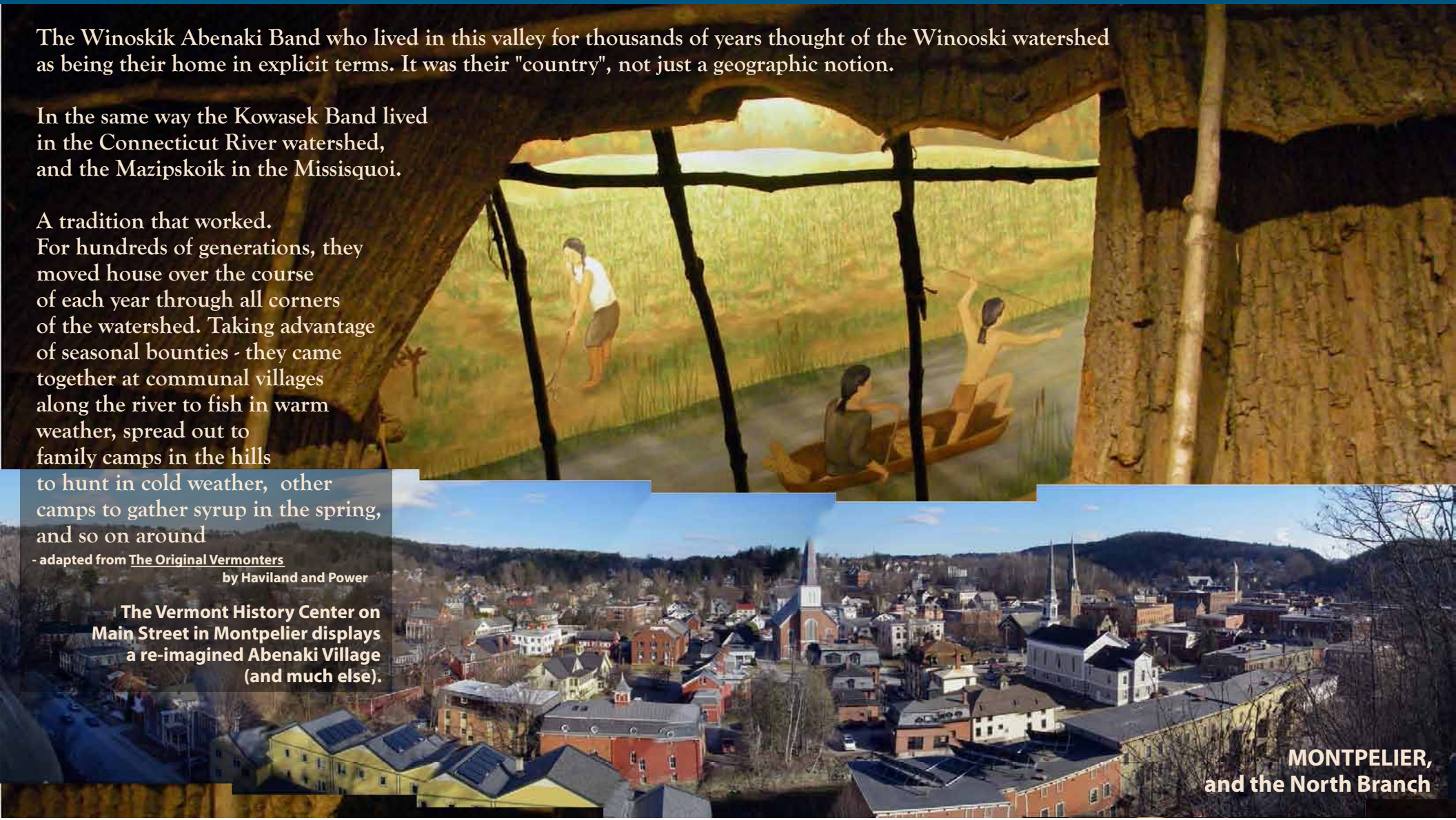
Along the 16 Cross Vermont Trail

The Winoskik Abenaki Band who lived in this valley for thousands of years thought of the Winooski watershed as being their home in explicit terms. It was their "country", not just a geographic notion.

In the same way the Kowasek Band lived in the Connecticut River watershed, and the Mazipskoik in the Missisquoi.

A tradition that worked. For hundreds of generations, they moved house over the course of each year through all corners of the watershed. Taking advantage of seasonal bounties - they came together at communal villages along the river to fish in warm weather, spread out to family camps in the hills to hunt in cold weather, other camps to gather syrup in the spring, and so on around

- adapted from The Original Vermonters by Haviland and Power

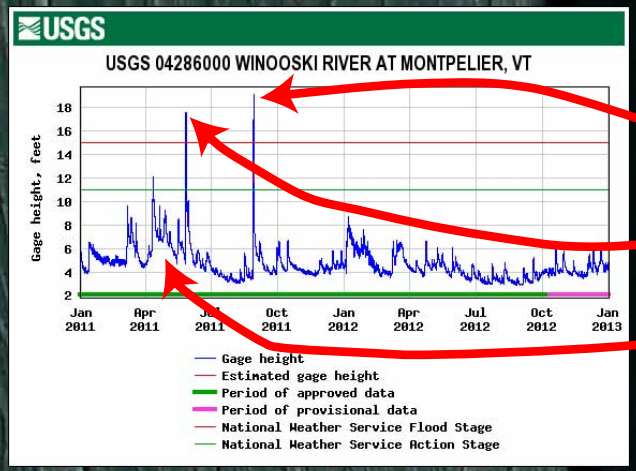


The Vermont History Center on Main Street in Montpelier displays a re-imagined Abenaki Village (and much else).

MONTPELIER, and the North Branch

Stream Gage

Along the 17 Cross Vermont Trail

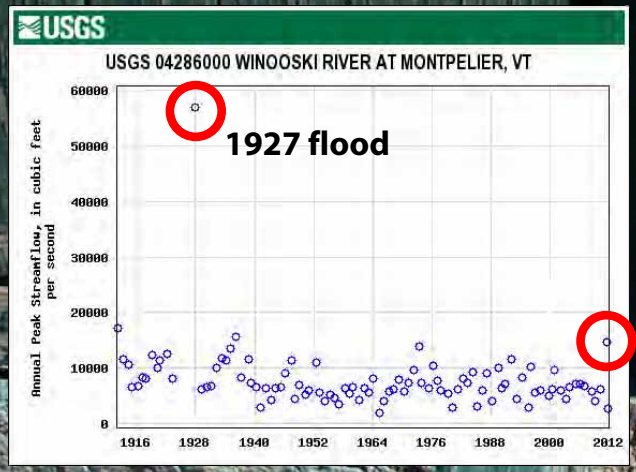


High water logged for 2011 and 2012.

Irene

May, 2011 storm

April, 2011 flooding



Annual peak flow records at this site go back to 1907.

2011 floods

You see along the river banks occasional concrete pillboxes, with antennas.

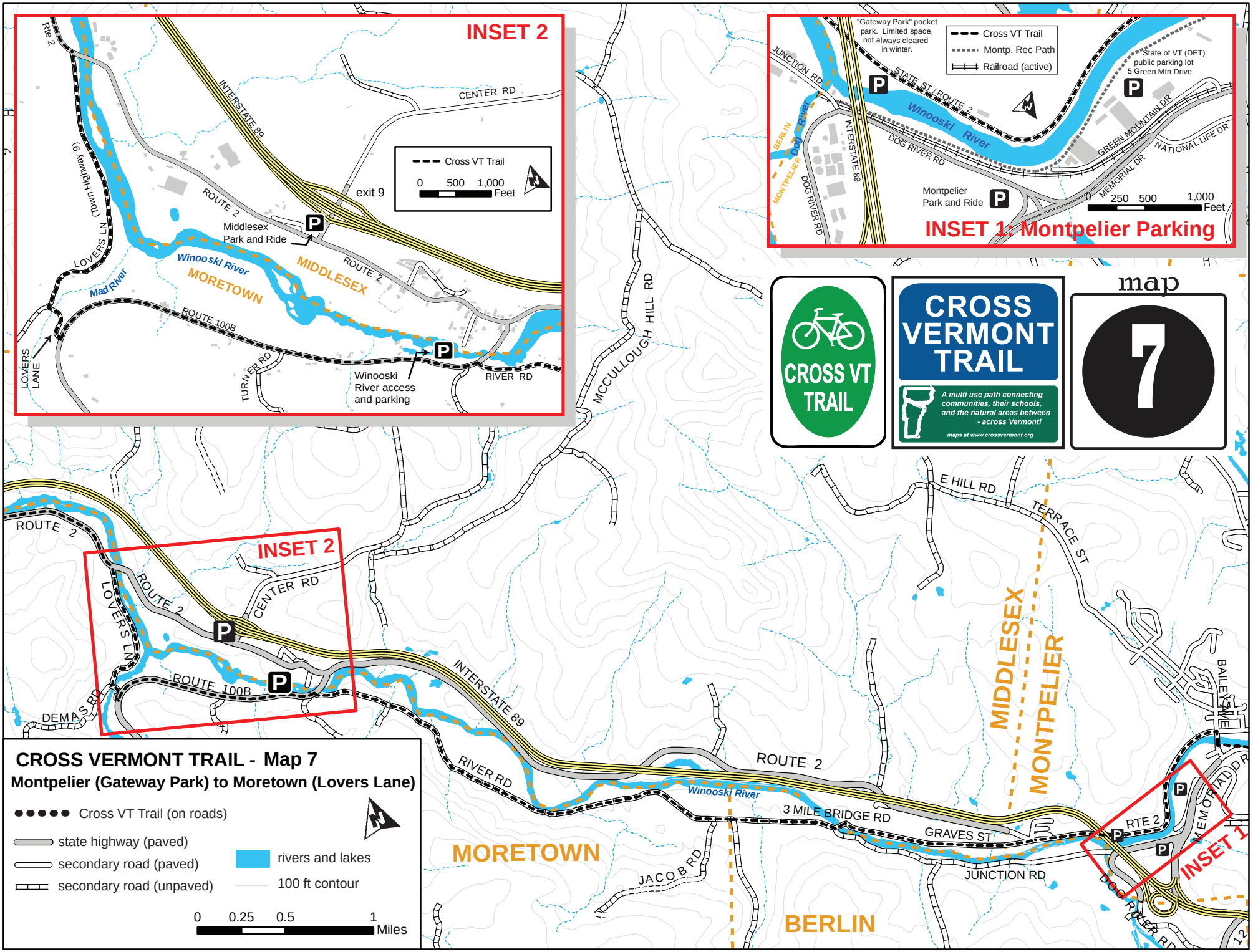
They are stream gages; constantly measuring the amount of water flowing by. (The data is posted live at usgs.gov.)

Gages are built to keep working in even the worst storms. During floods, the real time data is vital to emergency managers and people living down stream.

But they need to keep working all other days, too, to be useful during storms. Storm forecasting formulas are based on accurate knowledge of the river characteristics. Since river channels are dynamic, and always changing, the formulas are regularly updated with new information about what is "normal".

The resulting historic record is a treasure trove for scientists trying to understand the river.

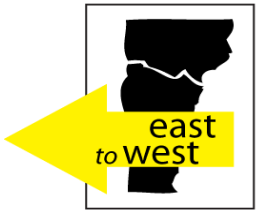
The traditional spelling is gage (not “gauge”.)


INSET 2
Rte 2
INTERSTATE 89
CENTER RD
(Town Highway 9)
LOVERS LN
ROUTE 2
exit 9
Middlesex
Park and Ride
Winooski River
MIDDLESEX
MORETOWN
Mad River
ROUTE 100B
LOVERS LANE
TURNER RD
Winooski
River access
and parking
RIVER RD
Cross VT Trail
0 500 1,000 Feet
"Gateway Park" pocket park. Limited space, not always cleared in winter.
JUNCTION RD
STATE ST / ROUTE 2
Winooski River
BERLIN
DOG RIVER
MONTPELIER
DOG RIVER RD
GREEN MOUNTAIN DR
NATIONAL LIFE DR
MEMORIAL DR
State of VT (DET)
public parking lot
5 Green Mtn Drive
Montpelier
Park and Ride
Montp. Rec Path
Railroad (active)
0 250 500 1,000 Feet
INSET 1: Montpelier Parking
MCCULLOUGH HILL RD
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map
7
E HILL RD
TERRACE ST
INSET 2
DEMASS RD
MIDDLESEX
MONTPELIER
BAILEY AVE
MEMORIAL DR
INTERSTATE 89
RIVER RD
ROUTE 2
Winooski River
3 MILE BRIDGE RD
GRAVES ST
RTE 2
JUNCTION RD
DOG RIVER RD
INSET 1
MORETOWN
JACOB RD
BERLIN
CROSS VERMONT TRAIL - Map 7
Montpelier (Gateway Park) to Moretown (Lovers Lane)
Cross VT Trail (on roads)
state highway (paved)
secondary road (paved)
secondary road (unpaved)
rivers and lakes
100 ft contour
0 0.25 0.5 1 Miles

Cross Vermont Trail *cue sheet*

Map 7

Montpelier (Gateway Park) to Moretown (Lovers Lane) (6.58 miles)



go	for	on	type	srfc	at mile
S	0.07	Rte 2 Gateway Park; Winooski River access; parking	road	paved	45.49
L	0.90	Graves St			45.56
	•	Montpelier/Middlesex town line; name change Graves St to Three Mile Bridge Rd			45.75
	•	historic steel arch truss bridge over Winooski River; Middlesex/ Berlin town line			46.43
R	3.43	3 Mile Bridge Rd *pass Junction Rd*		gravel	46.46
	•	Moretown/Berlin town line; name change Three Mile Bridge Rd to River Rd			47.06
	•	Road surface changes to paved		paved	49.39
L	1.26	Rte 100B			49.89
	•	pass Winooski River access; parking			49.92
R	0.09	Lovers Lane (TH 9)		gravel	51.15
	•	cross Mad River on bike/ped bridge			51.23
R	0.83	Lovers Lane (TH 9)			51.24
	•	jct Rte 2			52.07

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
You can help build more trail! www.crossvermont.org 802-498-0079

Cross Vermont Trail *cue sheet*

Map 7

Moretown (Lovers Lane) to Montpelier (Gateway Park) (6.58 miles)

go	for	on	type	srfc	at mile
R	0.83	Lovers Lane (TH 9)	road	gravel	38.75
L	0.09	Lovers Lane (TH 9) *turn to bridge*			39.58
	•	cross Mad River on bike/ped bridge			39.59
L	1.26	Rte 100B		paved	39.67
	•	pass Winooski River access; parking			40.90
R	3.43	River Rd			40.93
	•	Road surface changes to gravel		gravel	41.43
	•	Moretown/Berlin town line; name change River Rd to Three Mile Bridge Rd			43.76
L	0.90	Three Mile Bridge Rd *pass Junction Rd*		paved	44.36
	•	historic steel arch truss bridge over Winooski River; Middlesex/ Berlin town line			44.39
	•	Montpelier/Middlesex town line; name change Three Mile Bridge Rd to Graves St			45.07
S	0.07	Rte 2			45.26
	•	Rte 2 Gateway Park; Winooski River access; parking			45.33

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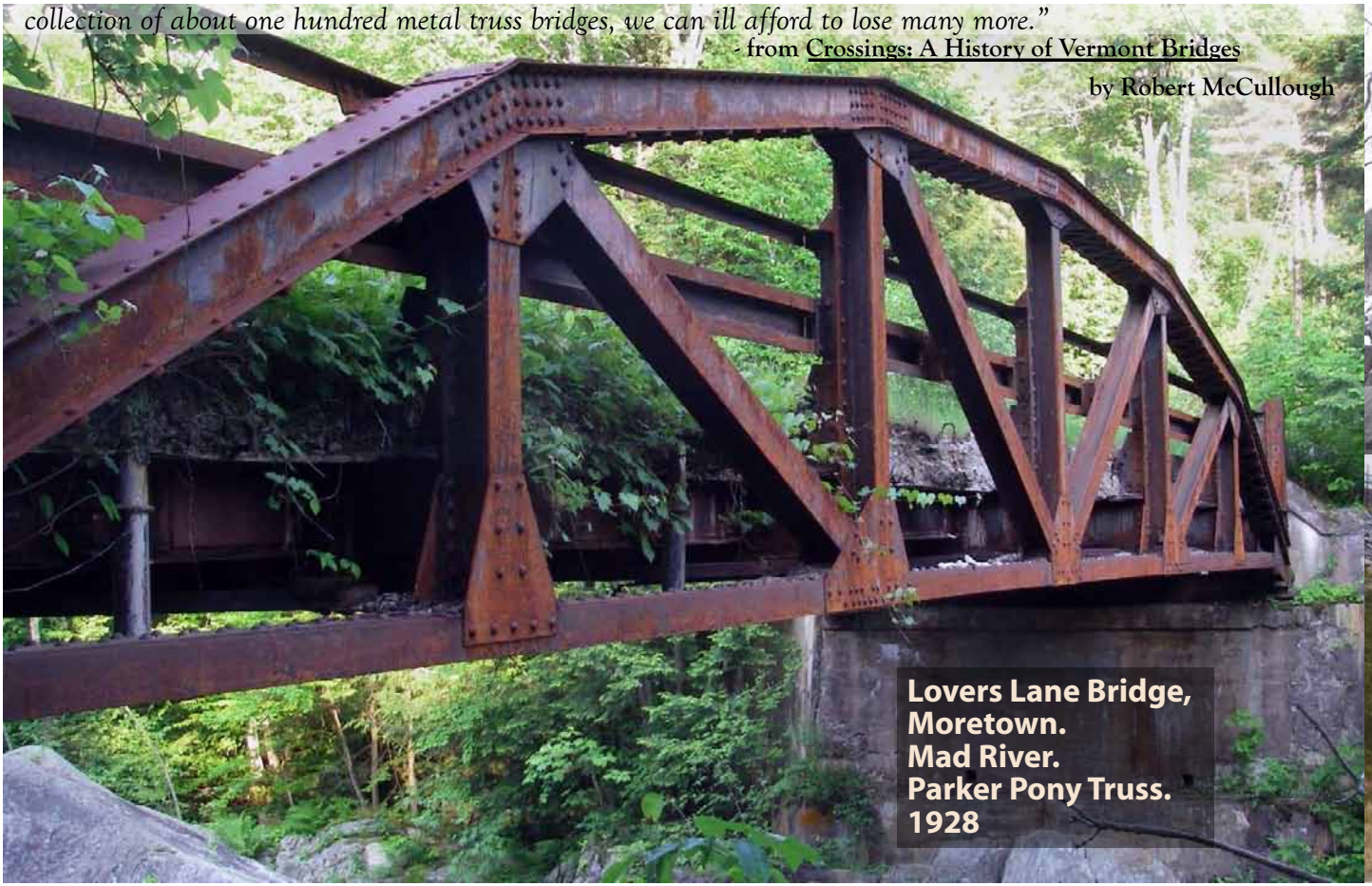
Crossings

Along the
18 Cross Vermont Trail

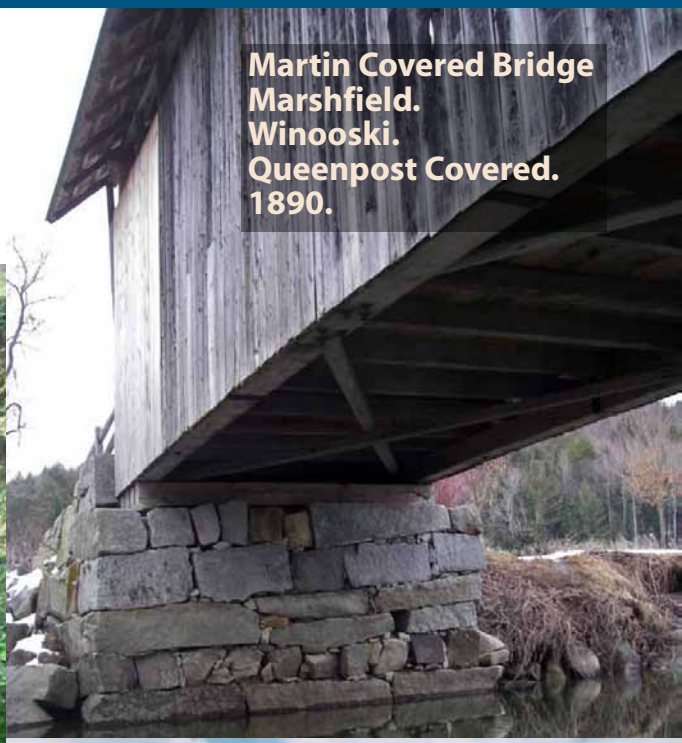
Bridges work best when unnoticed by traveler and river alike. Unimpeded. And yet, even then we may choose to slow and look; at them for their own sake.

"Metal truss crossings would benefit from several points of comparison with the timber framed covered bridges. Covered bridges were often portrayed in disparaging terms during the push to modernize highways eighty years ago [and were] considered ordinary in design. Remarkably, there were four or five hundred covered bridges in Vermont in the 1920s, more than four times the [number] that stand today. Considering Vermont's comparatively small collection of about one hundred metal truss bridges, we can ill afford to lose many more."

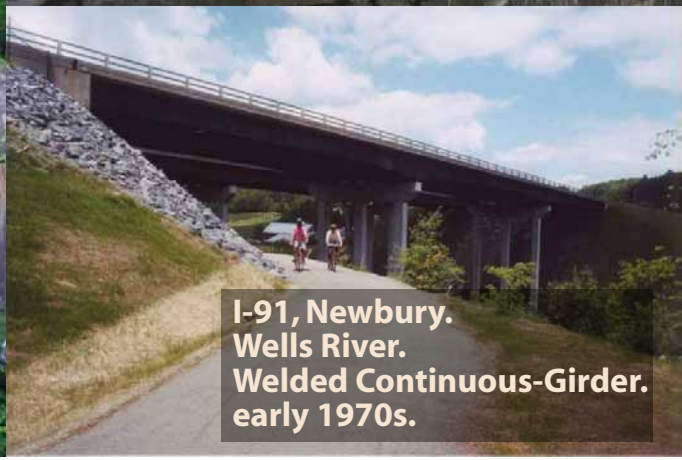
- from Crossings: A History of Vermont Bridges
by Robert McCullough



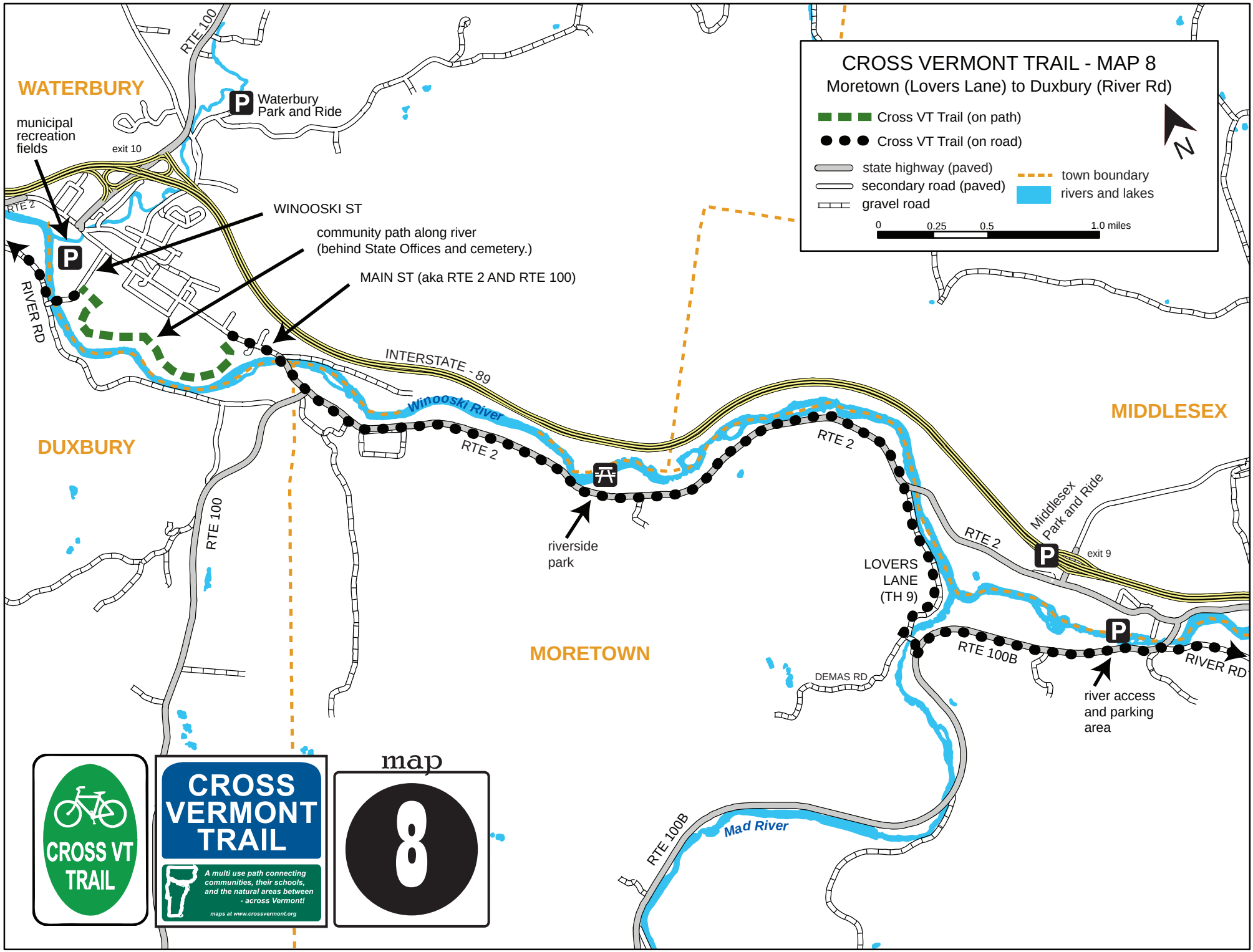
**Lovers Lane Bridge,
Moretown.
Mad River.
Parker Pony Truss.
1928**



**Martin Covered Bridge
Marshfield.
Winooski.
Queenpost Covered.
1890.**



**I-91, Newbury.
Wells River.
Welded Continuous-Girder.
early 1970s.**


CROSS VERMONT TRAIL - MAP 8
Moretown (Lovers Lane) to Duxbury (River Rd)
Cross VT Trail (on path)
Cross VT Trail (on road)
state highway (paved)
secondary road (paved)
gravel road
town boundary
rivers and lakes
0
0.25
0.5
1.0 miles
N
WATERBURY
municipal recreation fields
exit 10
RTE 100
Waterbury Park and Ride
RTE 2
WINOOSKI ST
community path along river (behind State Offices and cemetery.)
MAIN ST (aka RTE 2 AND RTE 100)
RIVER RD
INTERSTATE - 89
Winooski River
DUXBURY
RTE 2
RTE 100
riverside park
MIDDLESEX
RTE 2
Middlesex Park and Ride
exit 9
RTE 2
LOVERS LANE (TH 9)
MORETOWN
RTE 100B
DEMAS RD
RIVER RD
river access and parking area
RTE 100B
Mad River
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map
8

Cross Vermont Trail *cue sheet*

Map 8

Moretown (Lovers Lane) to Duxbury (River Rd) (5.07 miles)

go	for	on	type	srfc	at mile
L	3.26	Rte 2	road	paved	52.07
	•	pass public picnic area on banks of Winooski RIver; parking			53.85
S	0.49	Rte 2/100 *pass jct with Rte 100*			55.33
	•	highway bridge over Winooski River; Waterbury/Moretown town line			55.42
L	0.04	Outer Loop Rd *entrance to Vt State Office complex*			55.82
L	0.10	immediate left into parking lot and go around to back of buildings			55.86
R	0.49	Cross Vt Trail *on grassy path*	trail	dirt	55.96
S	0.49	Cross Vt Trail *around farm field*			56.45
L	0.08	Cross Vt Trail *on cemetery drive*			56.94
L	0.12	Winooski St	road	paved	57.02
	•	pass municipal recreation fields, parking; historic steel arch truss bridge over Winooski River; Duxbury/Waterbury town line;			57.11
	•	jct River Rd			57.14

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distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 8

Duxbury (River Rd) to Moretown (Lovers Lane) (5.07 miles)

go	for	on	type	srfc	at mile
L	0.12	Winooski St	road	paved	33.68
	•	historic steel arch truss bridge over Winooski River; Duxbury/Waterbury town line; pass municipal recreation fields, parking			33.71
R	0.08	Cross Vt Trail *on cemetery drive*	trail	dirt	33.80
R	0.49	Cross Vt Trail *around farm field*			33.88
S	0.49	Cross Vt Trail *on grassy path behind State Office Complex*			34.37
L	0.10	At end of grassy path, follow parking lot around to front of buildings	road	paved	34.86
R	0.04	Outer Loop Rd *exit from Vt State Office complex*			34.96
R	0.49	Rte 2/100			35.00
	•	highway bridge over Winooski River; Waterbury/Moretown town line			35.40
S	3.26	Rte 2 *pass jct with Rte 100*			35.49
	•	pass public picnic area to right, on banks of Winooski RIver; parking			36.97
	•	jct Lovers Lane (TH 9)			38.75

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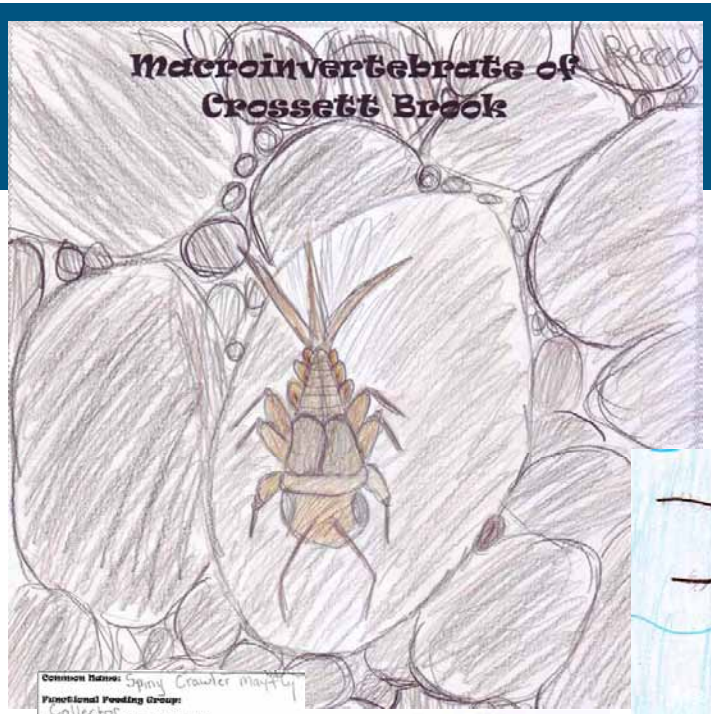
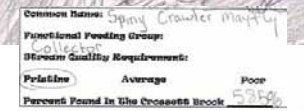
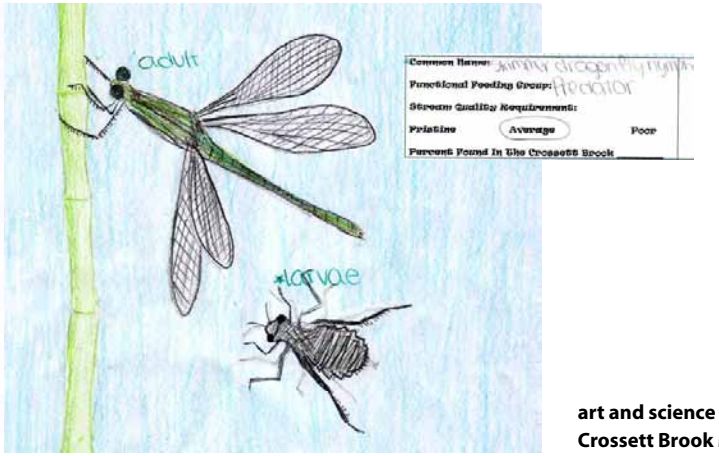


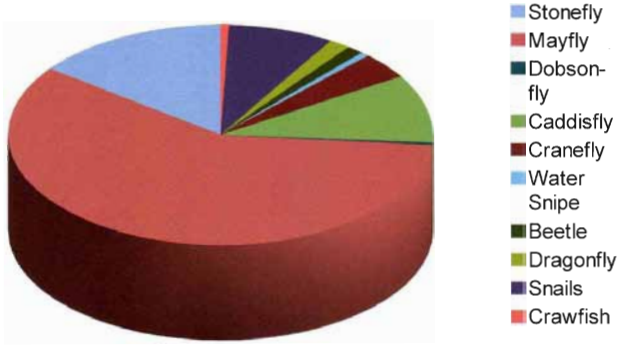
"Macro" because they are too large to fit through a 0.5 mm sieve.
Insects, snails, crawfish.
The second level of the river's food chain, gathering debris that falls in the water; grazing the periphyton (the tiny biofilm jungle on the stream bed.) Fishermen "tie flies" to mimic the macroinvertebrates.





art and science by
Crossett Brook Middle School students

Macroinvertebrates Found In The Crossett Brook, June 2012



According to our macroinvertebrate data and the gross stream quality assessment, we can conclude that the Crossett Brook water quality is good. The requirements to be a good river is that you can find one organism or greater per square foot. We found about 20. Also 30% or greater of the organisms found have to be Mayflys, Stoneflys, and Caddisflys. 83.5% of the Crossett Brook organisms are those. To be a healthy river there has to be six different organisms found; We found eleven. You also have to see fish during a 100 foot walk along the river. We found many fish as we walked the river. The Crossett Brook River was always meeting or exceeding the standards to be classified as a good quality river. I think we can safely conclude that the Crossett Brook water quality is good.

Floodplain Forest

Along the 20 Cross Vermont Trail

CROSS VERMONT TRAIL

"It must have been spectacular." *Continuous bands of forest extended for miles along all our major rivers, prior to European settlement. Entering a mature Floodplain Forest, with towering Silver Maples, pillar trunks, arching crowns, open airy and fern filled, could create the impression of a cathedral interior.*

- from Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont
by Elizabeth Thompson and Eric Sorenson.

Disturbance

Floods make the Floodplain Forest, of course. Here the river is always moving, back and forth, shaping and reshaping the land. Plants that need unchanging ground do not last. Those few that can "go with the flow" get to thrive in the rich soil given by the river. For example, few shrubs survive, freeing ferns to grown luxuriantly, head high. The trees that dominate grow tall quickly during quiet times – and quickly regroup and regrow after storms – bowed but unbroken.

Calm

The ever changing land makes this forest. But once made, the forest works to slow changes caused by the river. During floods, trees act like a filter, slowing water, screening out floating debris, reducing the water's power to scour and erode. In addition, many people find the flood plain forest has a calming effect on sunny days too!

First cut, last recovered.

Floodplain Forests were quickly cut down by pioneer families to get at the rich, stone free soil, deposited by annual floods. Food grown here helped them survive. Later, as the population grew, all types of forests were cleared. Today, most have regrown and the view of tree covered hills stretching into the distance is again normal. Down in the floodplain, though, forest remains uncommon. The reason is simple. We still value this land along rivers for agriculture and settlement. The forest on the trail ahead of you is young, but protected and growing - imagine what it will look like in time!

Along the Winooski c. 1910.
Photo by Homer Locke, courtesy Town of Bolton.

Hope Cemetery

Along the 21 Cross Vermont Trail

Rivers and villages interwined.

"The first settler of Waterbury was James Marsh . . .. [He] had been a soldier in the French War. In the early part of the Revolutionary War . . . he was drafted . . .. Having a large family of small children . . . he hired a young man as a substitute, paying him $100. To pay this sum . . . he sold his place in [Connecticut] and bought a right of land in . . . Waterbury. . . . In the spring of 1783, he came on, selected his right, . . . cleared a small piece of land between the Grave Yard and the river, and . . . planted it to corn.

During the first summer, this family with eight children, lived many weeks on wild onions, cooked in the milk of their one cow . . . That summer Mr. Marsh built his log-house on his clearing, a little to the west of the Grave Yard hill, and moved into it. His crop of corn raised near the river, was fine - but after he had secured some twenty bushels of it, a flood came and destroyed the remainder. So that for nearly two years they lived much of the time, on the flesh of the moose, deer and bear."

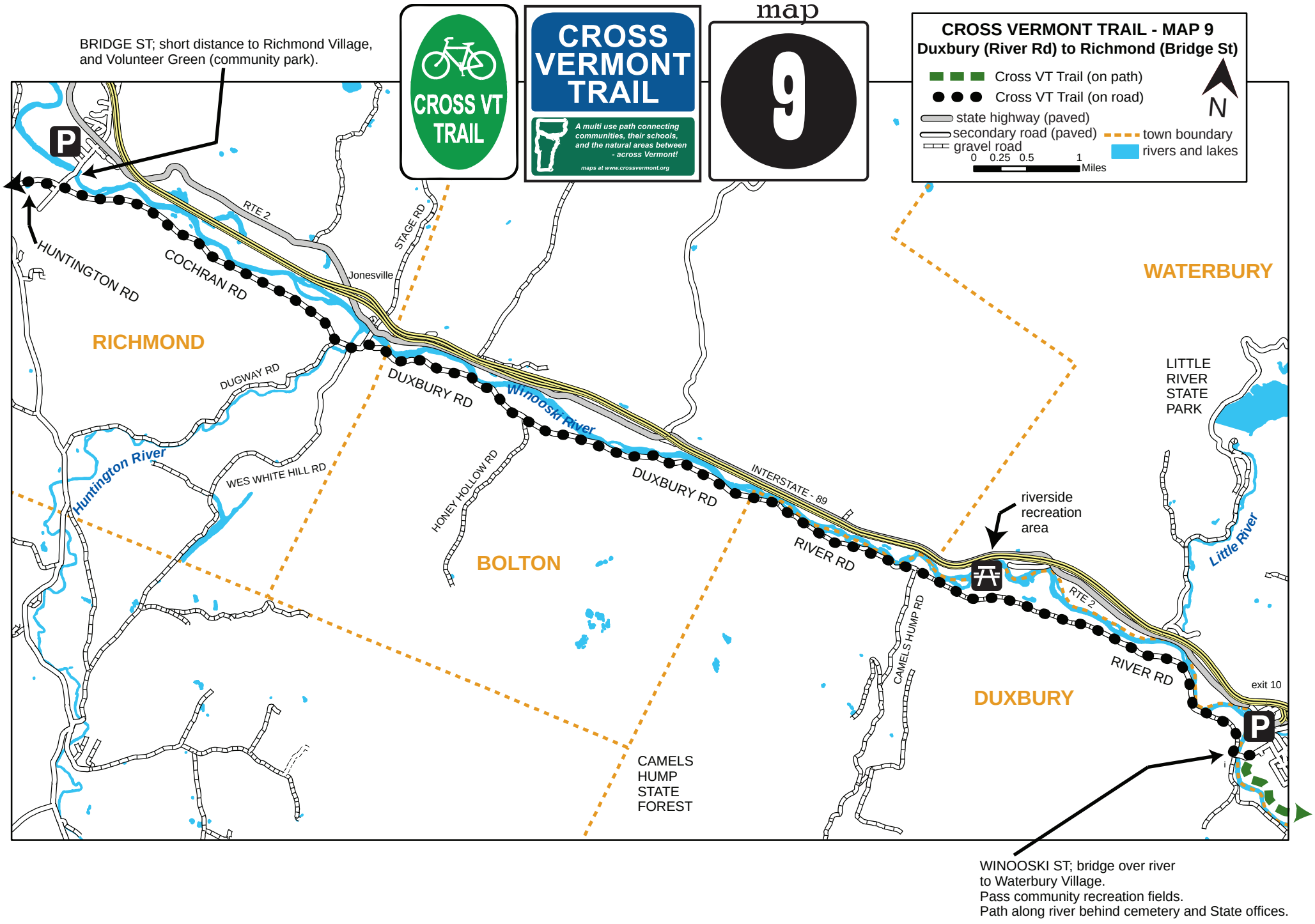
- from: The Early History of Waterbury, A Discourse. Delivered Feb 10, 1867 by Rev. C. C. Parker, Pastor of Congregational Church.

Here on "Grave Yard hill"
is a glimpse into the origin of a centuries old landscape
- rivers and villages in close relationship - which you see all along the Cross Vt Trail.

How old? What's the earliest headstone you can find? These two get close, but are not the oldest!

"Sacred to the memory of Seth Chandler who was killed instantly by the fall of a tree 31st March 1806 in the 39th year of his age."

"Amos Demmon died Sept 23 1801 in his 47th year. Enlisted under Capt. Hayward May 10, 1775. Later joined 2nd Mass Regt. Discharged June 10 1783."


CROSS VERMONT TRAIL - MAP 9
Duxbury (River Rd) to Richmond (Bridge St)
Cross VT Trail (on path)
Cross VT Trail (on road)
state highway (paved)
secondary road (paved)
gravel road
town boundary
rivers and lakes
0 0.25 0.5 1 Miles
N
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map
9
BRIDGE ST; short distance to Richmond Village, and Volunteer Green (community park).
HUNTINGTON RD
COCHRAN RD
RTE 2
STAGE RD
Jonesville
RICHMOND
WATERBURY
DUGWAY RD
DUXBURY RD
Winooski River
Huntington River
WES WHITE HILL RD
HONEY HOLLOW RD
BOLTON
INTERSTATE - 89
riverside recreation area
LITTLE RIVER STATE PARK
Little River
RIVER RD
CAMELS HUMP RD
exit 10
DUXBURY
CAMELS HUMP STATE FOREST
WINOOSKI ST; bridge over river to Waterbury Village.
Pass community recreation fields.
Path along river behind cemetery and State offices.

Cross Vermont Trail *cue sheet*

Map 9

Duxbury (River Rd) to Richmond (Bridge St) (13.68 miles)

go	for	on	type	srfc	at mile
R	10.08	River Rd	road	paved	57.14
	•	road surface changes to gravel		gravel	58.92
	•	DeForge Hydroelectric Station Recreation Area; parking, picnic, view of river			60.18
	•	pass Camels Hump Road			61.07
	•	road surface changes to paved		paved	63.06
	•	Bolton/Duxbury town line; name of road changes from River Road to Duxbury Road			63.21
	•	pass Long Trail trailhead			63.92
	•	pass Honeyhollow trailhead			65.03
	•	Richmond/Bolton town line			67.02
L	3.60	Cochran Rd			67.22
	•	pass east jct Rivershore Trail (loop)			68.15
	•	pass west jct Rivershore Trail (loop)			70.4
	•	pass jct with Bridge Street; name change Cochran Rd to Huntington Rd			70.82

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 9

Richmond (Bridge St) to Duxbury (River Rd) (13.68 miles)

go	for	on	type	srfc	at mile
S	3.60	pass jct with Bridge Street, *0.25 mi north to Volunteer Green, parking ; name change Cochran Rd to Huntington Rd*	road	paved	20.00
	•	pass west jct Rivershore Trail (loop)			20.42
	•	pass east jct Rivershore Trail (loop)			22.67
R	10.08	Duxbury Rd			23.60
	•	Richmond/Bolton town line			23.80
	•	pass Honeyhollow trailhead			25.79
	•	pass Long Trail trailhead			26.90
	•	Bolton/Duxbury town line; name change Duxbury Rd to River Rd			27.61
	•	road surface changes to gravel		gravel	27.76
	•	pass Camels Hump Rd			29.75
	•	DeForge Hydroelectric Station Recreation Area; parking, picnic, view of river			30.64
	•	road surface changes to paved		paved	31.90
	•	jct Winooski St			33.68

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Dams

Along the 22 Cross Vermont Trail

19th century Vermonters were dam people. They built dams everywhere, hundreds up and down the Winooski and its tributaries. They built castle like edifices across the valleys and then their villages around them; they built log and boulder crib dams high in the hills and then released them to drive logs to mills, and they built every size and shape dam in between.

But that's the not the story here.

The story now is that we are still in the age of dams. It's not history. Currently the Winooski and the Wells River both are being utilized at near capacity for commercial hydroelectric production. Major new dam projects have been finished on the Winooski as recently as the 1990s.

The Cross Vermont Trail route passes by 8 working dams (out of a total of 15 between the Winooski and Wells River basins). They are a sight to behold.

Life in the Current

Along the 23 Cross Vermont Trail

CROSS VERMONT TRAIL

"There's a good run,"

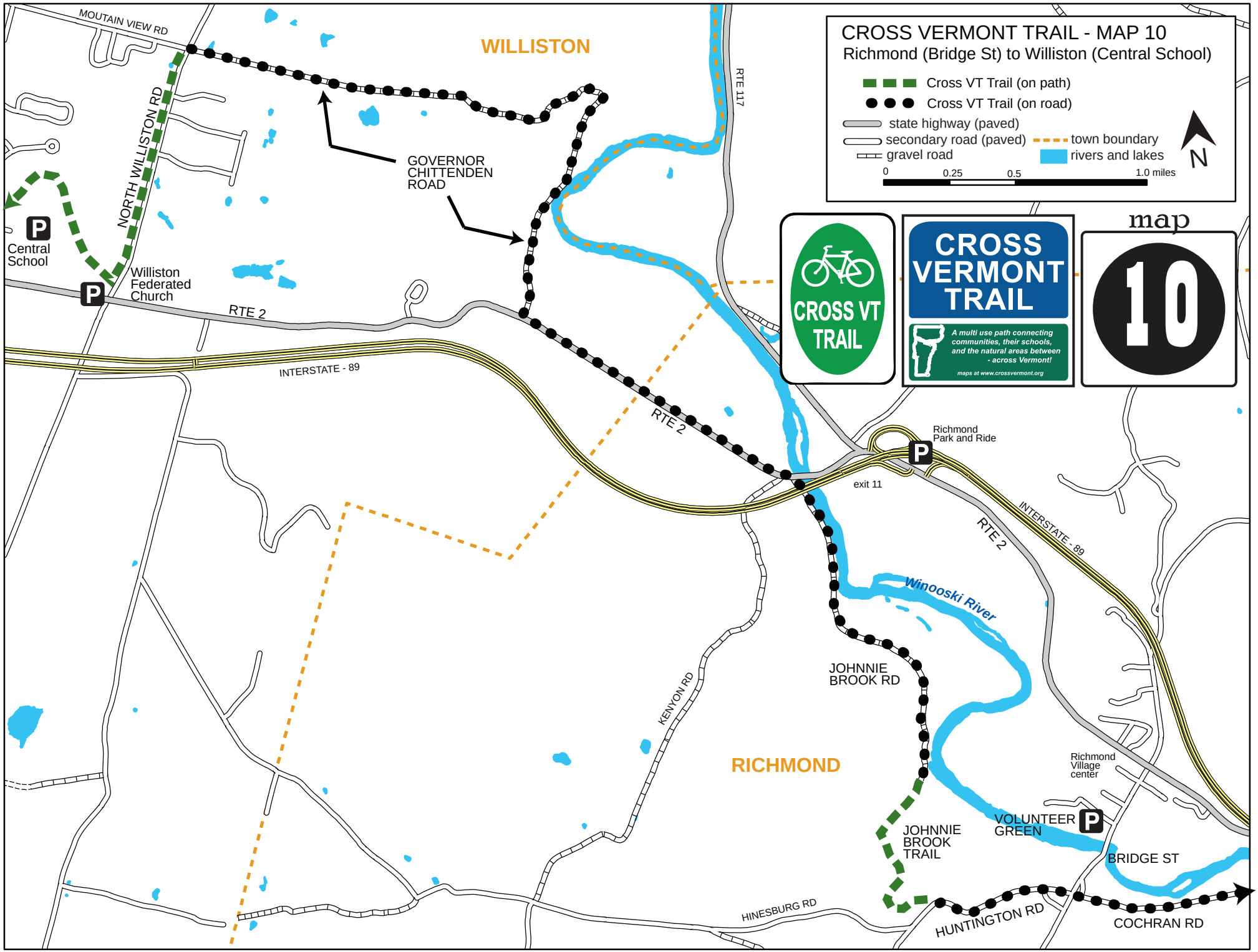
Lawrence said, pointing to an island with a current on either side and at the lower end a pool 10 or 12 feet deep where the currents converged. Trout will wait in a pool or behind a rock where the water is fairly quiet and wait for the riffle to bring them food and oxygenated water. They also will stay close to the bottom except when they rise to feed, for friction with the river bottom slows the current there. If they expend more energy than they take in, they are doomed.

We parked about half mile below Bolton Dam and followed a cold mountain stream (63 degrees - Lawrence carried a thermometer) under the railroad tracks to its delta at the Winooski. We came to a long, sweeping riffle that is one of Lawrence's favorite stretches of water.

"Perhaps not the best" he said.

- from In the Land of the Wild Onion by Charles Fish

photo USFWS


CROSS VERMONT TRAIL - MAP 10
Richmond (Bridge St) to Williston (Central School)
Cross VT Trail (on path)
Cross VT Trail (on road)
state highway (paved)
secondary road (paved)
gravel road
town boundary
rivers and lakes
0
0.25
0.5
1.0 miles
N
WILLISTON
RICHMOND
MOUTAIN VIEW RD
NORTH WILLISTON RD
GOVERNOR CHITTENDEN ROAD
RTE 117
Central School
Williston Federated Church
RTE 2
INTERSTATE - 89
exit 11
Richmond Park and Ride
Winooski River
JOHNNIE BROOK RD
KENYON RD
JOHNNIE BROOK TRAIL
VOLUNTEER GREEN
Richmond Village center
BRIDGE ST
HINESBURG RD
HUNTINGTON RD
COCHRAN RD
CROSS VT TRAIL
CROSS VERMONT TRAIL
A multi use path connecting communities, their schools, and the natural areas between - across Vermont!
maps at www.crossvermont.org
map
10

Cross Vermont Trail *cue sheet*

Map 10

Richmond (Bridge St) to Williston (Central School) (7.62 miles)

go	for	on	type	srfc	at mile
S	0.53	pass jct with Bridge Street, *0.25 mi north to Volunteer Green, parking ; name change Cochran Rd to Huntington Rd*	road	paved	70.82
R	0.05	Cross Vt Trail *Johnnie Brook Rd Trail (class IV rd); shared with farm access road*	trail	dirt	71.35
L	0.16	Cross Vt Trail *narrow path; farm rd to right not open to public*			71.40
	•	boardwalk			71.54
L	0.54	resume shared route with farm road		dirt	71.56
	•	bridge over Johnnie Brook			71.85
S	1.35	Johnnie Brook Rd *maintained as residential street*	road	gravel	72.10
L	1.27	Rte 2		paved	73.45
	•	Williston/Richmond town line			74.22
R	2.73	Governor Chittenden Rd		gravel	74.72
	•	Governor Chittenden Road bends sharply; pass farm buildings; east end of area area not plowed in winter (snowmobile trail)			75.82
	•	West end Governor Chittenden Road not plowed in winter (snowmobile trail)			76.47
	•	pass entrance to Catamount Family Center trail network			76.86
	•	road surface changes to paved		paved	77.35
L	0.99	Williston Bike Path along North Williston Rd	trail		77.45
	•	Williston Bike Path in park behind Central School; parking at Williston Federated Church			78.44

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 10

Williston (Central School) to Richmond (Bridge St) (7.62 miles)

go	for	on	type	srfc	at mile
L	0.99	Williston Bike Path along North Williston Rd *parking at Williston Federated Church*	trail	paved	12.38
R	2.73	Governor Chittenden Rd	road		13.37
	•	Governor Chittenden Road surface changes to gravel		gravel	13.47
	•	pass entrance to Catamount Family Center trail network			14.06
	•	West end Governor Chittenden Road not plowed in winter (snowmobile trail)			14.35
	•	Governor Chittenden Road bends sharply; pass farm buildings; east end of area area not plowed in winter (snowmobile trail)		paved	15.00
L	1.27	Rte 2			16.10
	•	Williston/Richmond town line			16.60
R	1.35	Johnnie Brook Rd		gravel	17.37
S	0.54	Cross Vt Trail *on Johnnie Brook Rd Trail (class IV rd)*	trail	dirt	18.72
	•	bridge over Johnnie Brook			18.97
R	0.16	Cross Vt Trail *bear right onto narow path, farm rd to left not open to public*			19.26
	•	boardwalk			19.28
R	0.05	Cross Vt Trail *resume sharing with farm road, climb to paved highway*		dirt	19.42
L	0.53	Huntington Rd	road	paved	19.47
	•	pass jct with Bridge St name change Huntington Rd to Cochran Rd			20.00

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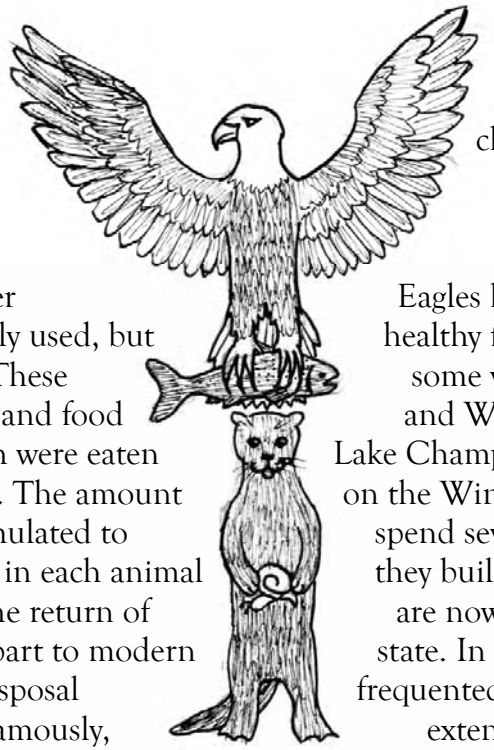
Return of the Eagle

Along the 24 Cross Vermont Trail

Eagles in Vt again; nationwide comeback passes milestone.

Like a national symbol ought to be, eagles are widespread throughout the USA.
However, in the early 1970s their numbers plummeted.
They were extinct in Vermont, and endangered elsewhere.



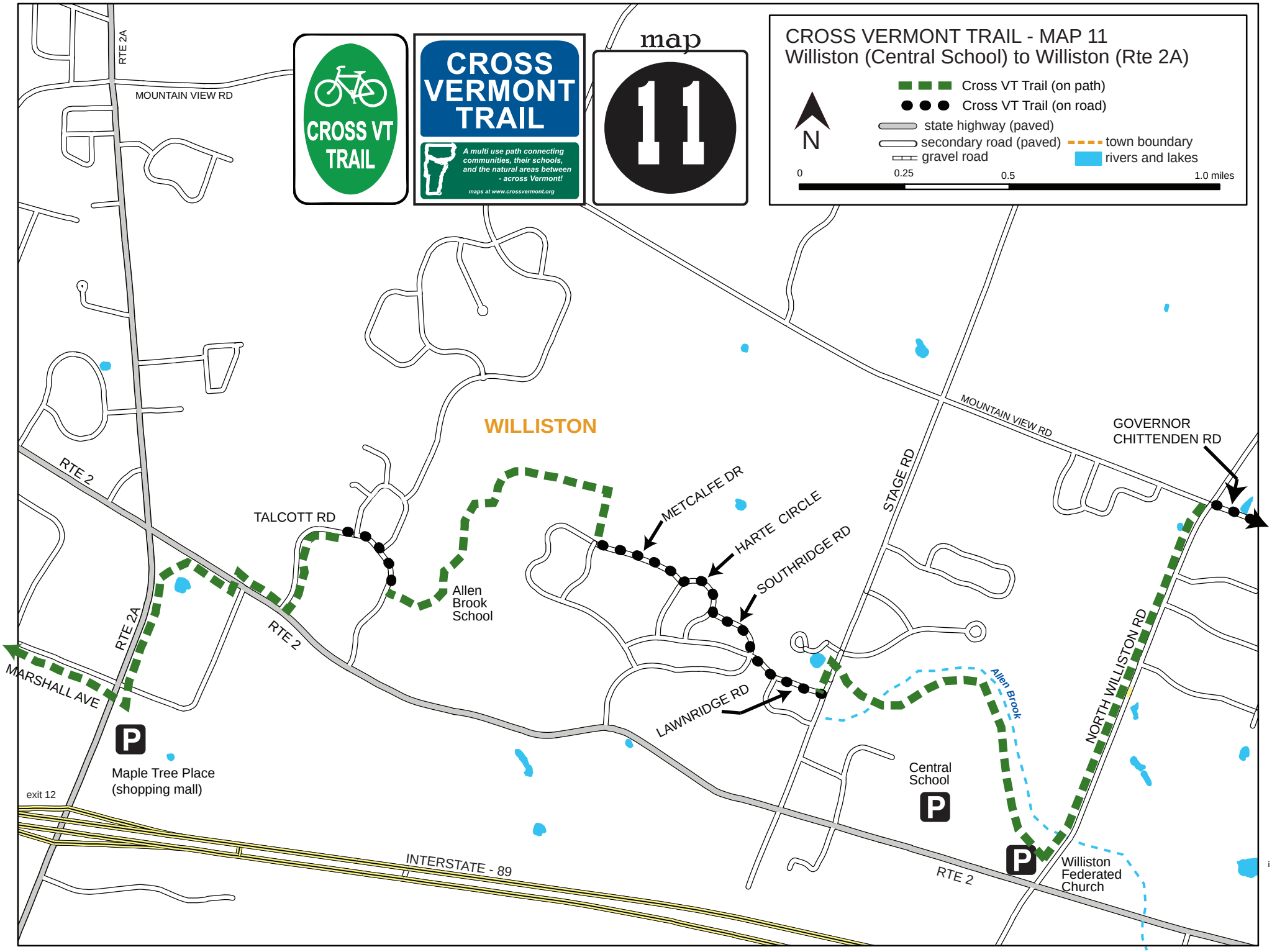
Eagles sit at the top of the food chain. They are "top of the totem pole." This was not a good place to be in the 1950s and 1960s when pesticides and other chemicals were first widely used, but still poorly understood. These toxins got into the water and food of smaller animals, which were eaten by larger animals in turn. The amount of toxins gradually accumulated to greater and greater levels in each animal on up the food chain. The return of the eagle is due in large part to modern control of the use and disposal of chemicals - starting, famously, with the pesticide DDT.

In order to finish their come back, eagles needed more than clean water and poison free food.

They needed habitat.

Eagles live at large rivers and lakes with healthy fish, lined with forests including some very large trees. Vt Dept of Fish and Wildlife calculates the Intervale at Lake Champlain is the only nesting habitat on the Winooski. However, juvenile eagles spend several years ranging widely before they build their first nest. Eagle sightings are now reported from throughout the state. In at least one recent year, an eagle frequented the Johnnie Brook area for an extended period. Keep your eyes out!


CATTLE
CROSSING


CROSS VERMONT TRAIL - MAP 11
Williston (Central School) to Williston (Rte 2A)
Cross VT Trail (on path)
Cross VT Trail (on road)
state highway (paved)
secondary road (paved)
gravel road
town boundary
rivers and lakes
N
0
0.25
0.5
1.0 miles
CROSS VT TRAIL
CROSS VERMONT TRAIL
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maps at www.crossvermont.org
map
11
WILLISTON
RTE 2A
MOUNTAIN VIEW RD
RTE 2
TALCOTT RD
METCALFE DR
HARTE CIRCLE
SOUTHRIDGE RD
STAGE RD
GOVERNOR CHITTENDEN RD
Allen Brook School
MARSHALL AVE
LAWNRIDGE RD
Allen Brook
NORTH WILLISTON RD
Maple Tree Place (shopping mall)
exit 12
Central School
INTERSTATE - 89
Williston Federated Church

Cross Vermont Trail *cue sheet*

Map 11

Williston (Central School) to Williston (Rte 2A) (3.63 miles)

go	for	on	type	srfc	at mile
R	0.98	Williston Bike Path in park behind Central School; *parking at Williston Federated Church*	trail	paved	78.44
	•	junction east end loop spur to Williston Central School; parking behind school			78.72
	•	junction with Allen Brook Nature Trail (side trail)			78.82
	•	junction west end loop spur to Williston Central School			79.02
L	0.04	Williston Bike Path along Stage Rd			79.42
R	0.22	Lawnridge Rd	road		79.46
R	0.15	Southridge Rd			79.68
R	0.15	Harte Circle			79.83
R	0.26	Metcalfe Dr			79.98
R	0.04	Williston Bike Path along Coyote Lane	trail		80.24
L	0.51	Williston Bike Path in park behind Allen Brook School			80.28
S	0.11	forward through playground to front of school building			80.79
R	0.09	Williston Bike Path continues past school			80.90
R	0.18	Talcott Rd	road		80.99
S	0.30	Williston Bike Path along Talcott Rd	trail		81.17
R	0.11	Williston Bike Path along Rte 2			81.47
S	0.49	Cross Rte 2 at light; forward on path			81.58
	•	path forks and goes around pond, begins to follow Rte 2A			81.72
	•	jct Rte 2A			82.07

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 11

Williston (Rte 2A) to Williston (Central School) (3.63 miles)

go	for	on	type	srfc	at mile
L	0.49	Cross Rte 2A at light, follow Williston Bike Path along Rte 2A	trail	paved	paved
	•	path forks and goes around pond, begin follow along Rte 2			9.10
S	0.11	Cross Rte 2 at light; forward on path			9.24
L	0.30	Williston Bike Path along Talcott Rd			9.35
S	0.18	Talcott Rd *ride with traffic*	road		9.65
L	0.09	Williston Bike Path *towards Allen Brook School*	trail		9.83
L	0.11	Through playground to back of school building			9.92
S	0.51	Williston Bike Path in park behind Allen Brook School			10.03
R	0.04	Williston Bike Path along Coyote Lane			10.54
L	0.26	Metcalfe Dr	road		10.58
L	0.15	Harte Circle			10.84
L	0.15	Southridge Rd			10.99
L	0.22	Lawnridge Rd			11.14
L	0.04	Williston Bike Path along Stage Rd	trail		11.36
R	0.98	Williston Bike Path in park behind Central School			11.40
	•	junction west end loop spur to Williston Central School			11.80
	•	junction with Allen Brook Nature Trail (side trail)			12.00
	•	junction east end loop spur to Williston Central School; parking behind school			12.10
	•	Williston Bike Path along North Williston Rd parking at Williston Federated Church			12.38

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400 Generations

Along the 25 Cross Vermont Trail

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map it at www.crossvermont.org

photos UVM CAP Report #204

photo Burlington Free Press 7/9/2001

10,000 years ago a group of 25 - 40 people arrived at a hill overlooking Allen Brook, above the Cross Vermont Trail route, and established a base camp. In a sense, they never left. Their drills, knives, hammers, and spear heads made of stone were still here, ready to tell their story, when archeologists from UVM came looking in advance of a planned highway. Archeologists found one of the largest Paleoindian sites known in the northeast, among the oldest in Vermont. With their careful excavation, it has told us the story of that band of settlers, exploring a new land.

People who study the Vermont archeological record see evidence of an unbroken line from those first Paleoindian pioneers to the Abenaki who live in Vermont today. Pretty deep family roots! Here, members of the Missisquoi Band meet with Governor Salmon in 1976.

Champlain Sea

Along the
26 Cross Vermont Trail

9000 BC to 6000 BC

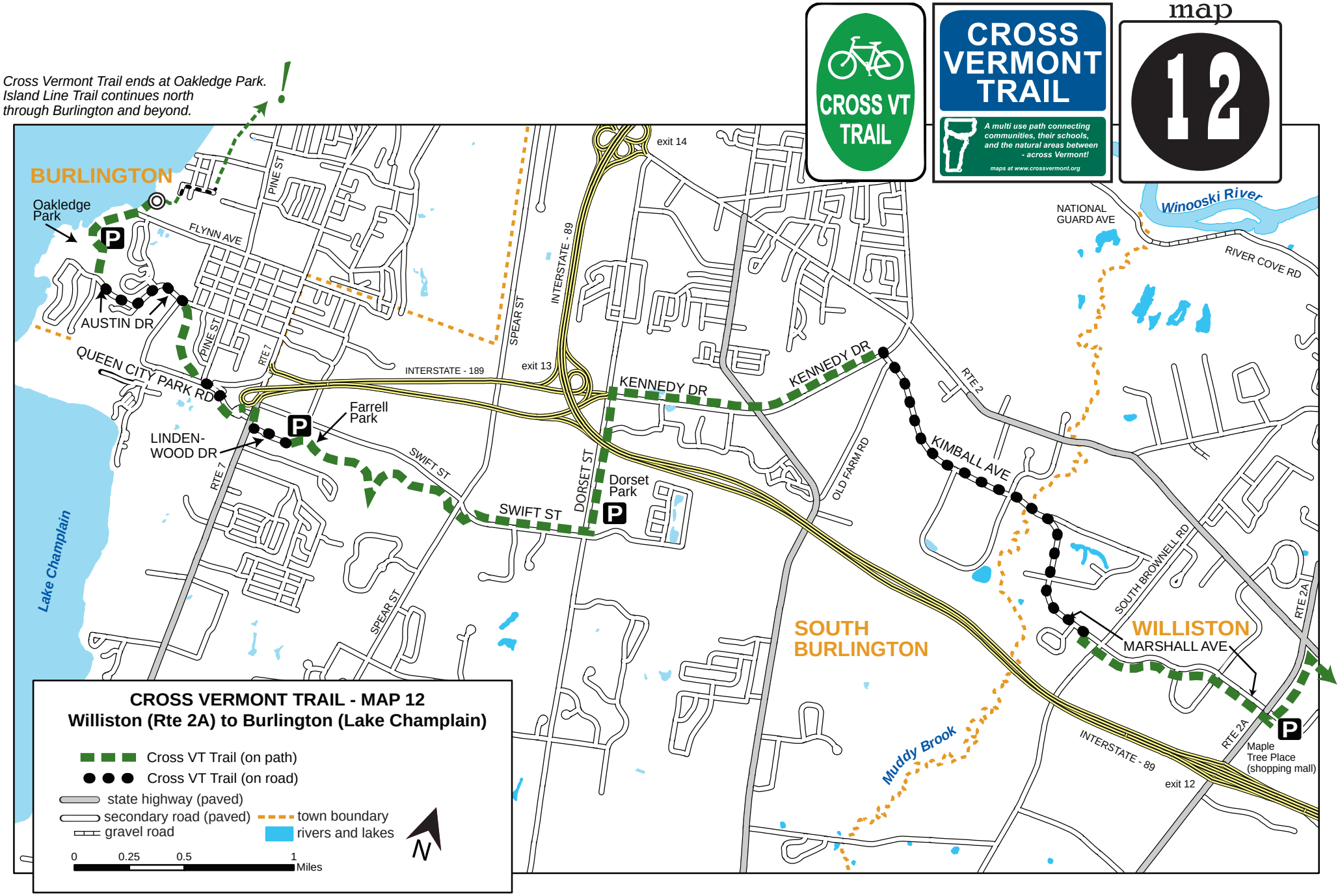
The first Vermonters arrived in Williston and set up camp on an ocean beach, ringed by a tundra dotted with pioneer trees. Beluga whales swam in the shallows, and Woolly Mammoths grazed the hills. Fossil remains of both these animals have been found nearby and are on display at UVM's Perkins Museum. The beluga whale (named Charlotte) is Vermont's "State Fossil."

Glaciers sat on Vermont like a fat man on a pool float.

Just like a pool float sinks into water, the crust of the earth here was pushed down into the magma, molten rock deep in the earth below. After the weight of the glaciers melted away, it took thousands of years for the magma to ooze back into place, "popping" the surface up again.

Williston was pushed down to about sea level, and Burlington was lower. When the glaciers finally retreated north of the St. Lawrence, the Atlantic came pouring in.

As the crust of the earth rebounded, the salt water eventually drained back out, creating the lake we see today.


CROSS VT TRAIL
CROSS VERMONT TRAIL
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maps at www.crossvermont.org
map
12
Cross Vermont Trail ends at Oakledge Park.
Island Line Trail continues north
through Burlington and beyond.
BURLINGTON
Oakledge Park
FLYNN AVE
PINE ST
AUSTIN DR
QUEEN CITY PARK RD
LINDEN-WOOD DR
RTE 7
Farrell Park
SWIFT ST
SPEAR ST
INTERSTATE - 89
exit 14
exit 13
INTERSTATE - 189
KENNEDY DR
DORSET ST
Dorset Park
Lake Champlain
NATIONAL GUARD AVE
Winooski River
RIVER COVE RD
RTE 2
OLD FARM RD
KIMBALL AVE
SOUTH BURLINGTON
SOUTH BROWNELL RD
WILLISTON
MARSHALL AVE
RTE 2A
Muddy Brook
Maple Tree Place (shopping mall)
exit 12
CROSS VERMONT TRAIL - MAP 12
Williston (Rte 2A) to Burlington (Lake Champlain)
Cross VT Trail (on path)
Cross VT Trail (on road)
state highway (paved)
secondary road (paved)
gravel road
town boundary
rivers and lakes
0
0.25
0.5
1
Miles
N

Cross Vermont Trail *cue sheet*

Map 12

Williston (Rte 2A) to Burlington (Lake Champlain) (8.75 miles)

east to west

go	for	on	type	srfc	at mile
R	0.94	Cross Rte 2A at light, follow Williston Bike Path along Marshall Ave	trail		82.07
S	1.87	Marshall Ave *ride with traffic*	road		83.01
	•	South Burlington/Williston town line at Muddy Brook Road; name change Marshall Ave to Kimball Ave			83.83
L	1.44	South Burlington Bike Path along Kennedy Drive	trail		84.88
L	0.67	South Burlington Bike Path along Dorset St *pass South Burlington H.S.*			86.32
R	1.12	South Burlington Bike Path along Swift St *pass Dorset Park, parking, walking trails, playing fields*			86.99
	•	cross Spear St			87.61
R	0.50	Bike Path *hard right towards Farrell Park*			88.11
L	0.17	South Burlington Bike Path through Farrell Park *pass parking; jungle gym*			88.61
S	0.19	Lindenwood Dr	road	paved	88.78
R	0.01	sidewalk along Rte 7	trail		88.97
L	0.08	cross Rte 7 at light and follow bike path			88.98
S	0.25	Queen City Park Rd	road		89.06
	•	Burlington/South Burlington city line at Potash Brook			89.25
R	0.40	Champlain Parkway Path	trail		89.31
L	0.50	Austin Dr	road		89.71
R	0.14	Burlington Bike Path *south end of Oakledge Park*	trail		90.21
L	0.08	Skirt south edge of parking lot, follow path downhill to left.			90.35
R	0.39	Pass jct spur to lakeshore, take hard right and go uphill.			90.43
	•	*west end of Cross Vt Trail statewide route; City of Burlington, Oakledge Park, Lake Champlain, Blanchard Beach and Earth Clock*			90.82

S = straight, go forward **L** = left, bear or turn left **R** = right, bear or turn right
distances shown in miles (0.01 mile = about 50 feet)
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Cross Vermont Trail *cue sheet*

Map 12

Burlington (Lake Champlain) to Williston (Rte 2A) (8.75 miles)

west to east

go	for	on	type	srfc	at mile
S	0.39	Burlington Bike Path *head east, this is west end of Cross Vt Trail statewide route; City of Burlington, Oakledge Park, Lake Champlain, Blanchard Beach and Earth Clock*	trail		0.00
L	0.08	Pass jct spur to lakeshore, take hard left and go uphill.			0.39
R	0.14	Skirt south edge of parking lot, follow path across lawn to right.			0.47
L	0.50	Austin Dr	road		0.61
R	0.40	Champlain Parkway Path	trail		1.11
L	0.25	Queen City Park Rd	road		1.51
	•	Burlington/South Burlington city line at Potash Brook			1.57
R	0.08	Bear right on bike path to Rte 7			1.76
R	0.01	Use light controlled pedestrian crossing to cross Rte 7 then turn right along sidewalk	trail		1.84
L	0.19	Lindenwood Dr	road	paved	1.85
S	0.17	South Burlington Bike Path	trail		2.04
S	0.50	Farrell Park *pass parking; jungle gym*			2.21
L	1.12	Bike Path *hard left at three way intersection, towards Dorset Park*			2.71
	•	cross Spear St			3.21
L	0.67	South Burlington Bike Path along Dorset St *pass Dorset Park, parking,walking trails, playing fields*			3.83
R	1.44	South Burlington Bike Path along Kennedy Drive *pass South Burlington H.S*			4.50
R	1.87	Kimball Ave *ride with traffic*	road		5.94
	•	South Burlington/Williston town line at Muddy Brook Road; name change Kimball Ave to Marshall Ave			6.99
S	0.94	Williston Bike Path *along Marshall Ave*	trail		7.81
	•	Rte 2A			8.75

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Wildlife Corridor

Along the 27 Cross Vermont Trail

CROSS VERMONT TRAIL — A multi use path connecting communities, their schools, and the natural areas between - across Vermont! — map at www.crossvermont.org

Muddy Brooks and Green Ways.

Neighborhood

A simple 100 ft wide swath of trees gives animals the cover needed to travel easily between two protected wetland areas where they live and feed.

Region

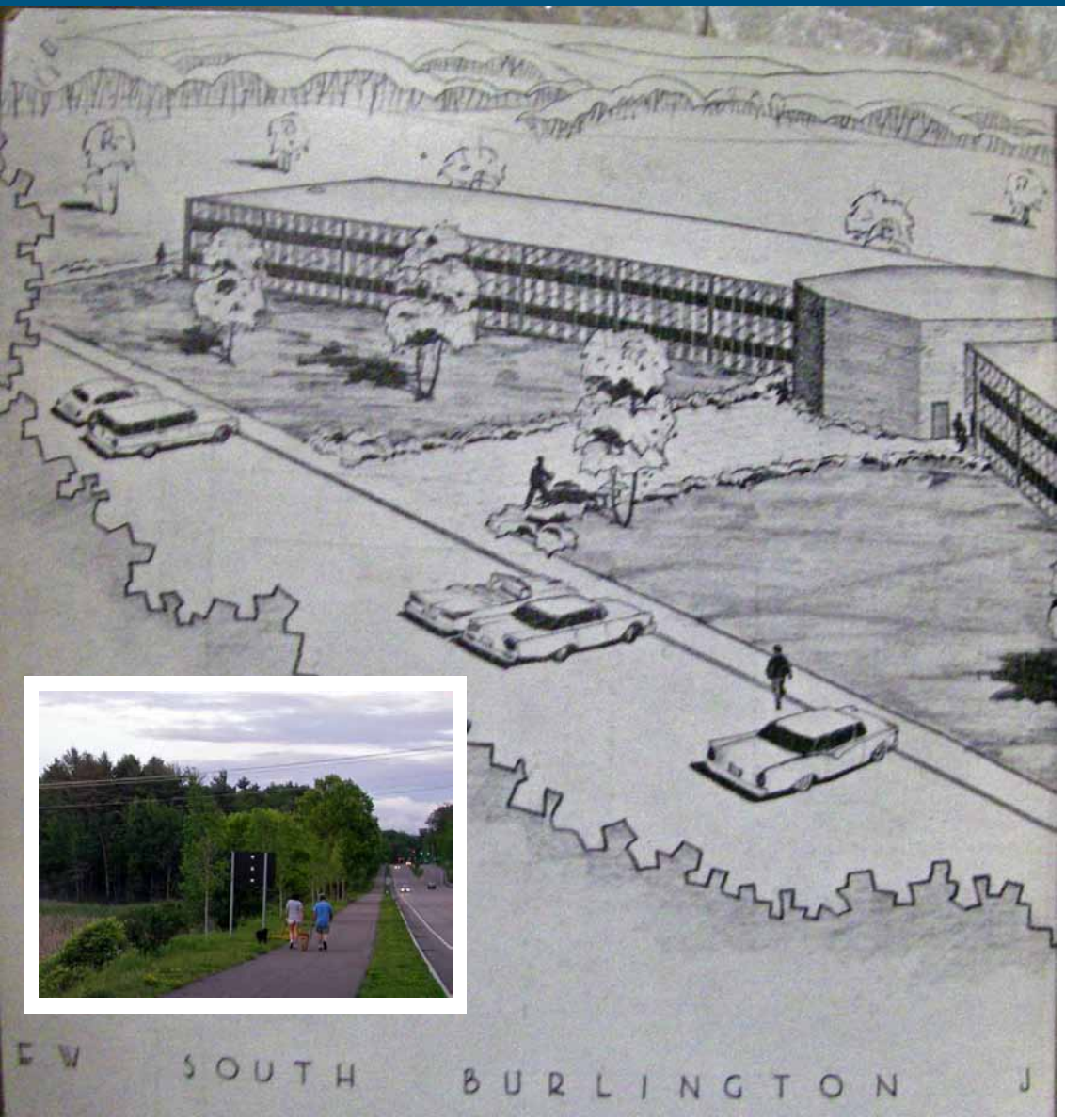
Vermont sits at the cross roads of large scale habitat corridors stretching across the Northeast.

Town

The mostly forested banks of Muddy Brook run the length of Willison. Uniting into one habitat a series of wetlands from Shelburn Pond to the Winooski River. There are numerous beaver lodges, including, at times, here in the developed part of town.

Kennedy Drive

Along the 28 Cross Vermont Trail



New Frontier

Fifty years ago, the people of South Burlington were on the leading edge. The population of Vermont had been static from the late 19th century to the mid twentieth. Then it doubled. It happened here first. Through out the mid-twentieth century the census count for South Burlington grew at a rate of 100%, decade after decade. They went from wood stove heated, one room school houses in 1940 - spread out each within walking distance of the children for each rural neighborhood - to having a centralized school that was the largest in the state by 1960.

They took seriously the challenge to build an ideal new town. One chance to do so arrived with construction of the interstate in the early 1960s. Kennedy Drive was built at the same time as I-89, meant to go along with it. A brand new section of town, with a wide, modern boulevard giving easy access to carefully planned campuses of residential and commercial development. A "Brasilia on the Potash".

from South Burlington Town Reports:

1960: One of the most difficult and, we feel, beneficial accomplishments during the past year has been the completion of negotiations for our primary needs in connection with the Interstate Highway through our Town. The present Chairman of our Board, alone, has made more than one dozen trips to Montpelier at his own expense in an effort to complete these negotiations with the Highway Department. The limited access portion of the Interstate from Shelburne Road to Dorset Street cannot be used for development; but that portion of the road between Dorset Street and Williston Road will be available. Its general route will proceed East along the southern side of the Town lot (site of the new Junior-Senior High School now under construction) and in general follow Potash Brook.

1965: During each of the past few reports from your board, we have mentioned with pride the rate of growth of our Town which continues to be more rapid than that of any other in the state. 1965 was again a banner year. Uppermost in [our] objectives is the continued assurance of maintaining a healthy free from care community where each citizen may find an ideal place to live, work and play. A professional planning consultant has been picked to do the ... work and it is planned for completion in less than eighteen months.

Retrofit

At that time, they thought the growth would continue for ever. The town government spoke of needing to plan for a population of 40,000 by 2010. In fact the population of South Burlington in the 2010 census was less than half that, and not too much more than preceding decades (though a world of difference from the size a century before). In 2012, Vermont as a whole was estimated to have actually lost population. However, the effect of all the development from the years of growth are still working their way through the natural systems around us. Potash Brook, along Kennedy Drive, is classified as "impaired". All the water that now runs off new roads, parking lots, and buildings flushes the toxins of the modern world into the brook where it is concentrated into amounts of heavy metals measured pounds at a time. Even the simple rush of the water that arrives in the stream all at once, where before it would have soaked into the ground and been stored to recharge the brook gradually over time, erodes tons of soil unnecessarily. To bring things back into balance, the City recently reconstructed all along the road, creating retention pools that capture runoff, filter it, and release it slowly to the stream, mimicking natural function. Look for these along side the bike path. Kennedy Drive was meant to be the picture of the future. Now, it is a little more so!

Winooski River

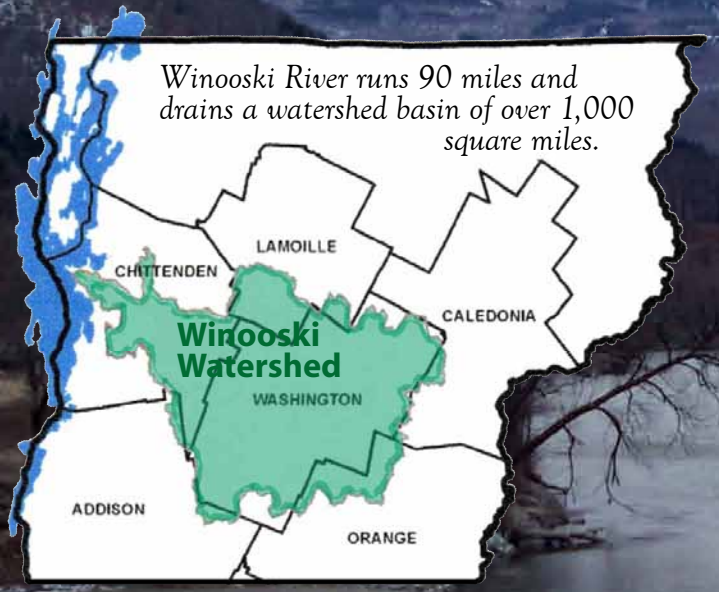
Along the 29 Cross Vermont Trail

A mighty water gap through the mountains.

The Cross Vermont Trail, together with I-89, Rte 2, and the Central Vt Railroad, takes advantage of a natural water gap through the Green Mountains carved out over hundreds of millions of years by the Winooski River. The elevation at the river is but a few hundred feet above sea level where Camels Hump and Mt. Mansfield each rise to over 4,000 feet on either side. All the blasting of rock for the highway pales next to this feat of the Winooski. And the labor proceeds. New, steep sided canyons have been cut from bed rock in recent millennia along the route by the river still seeking the optimal way to the lake.

Cartier Construction drills ledge for I-89
photo: Vt State Archives

Winooski Gorge



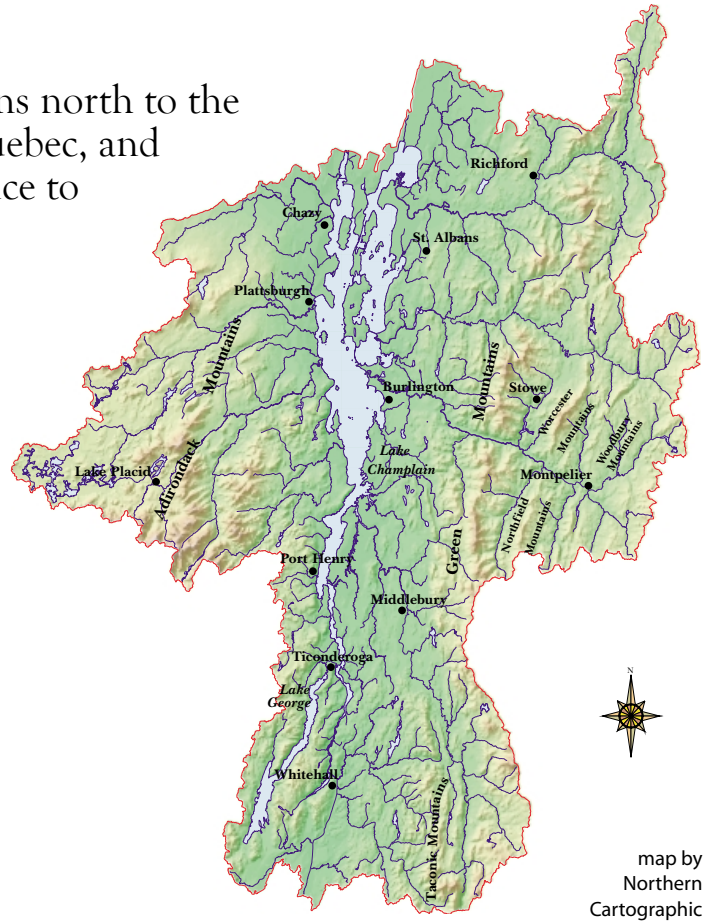
Winooski River runs 90 miles and drains a watershed basin of over 1,000 square miles.

Lake Champlain

Along the 30 Cross Vermont Trail

Lake Champlain drains north to the Richelieu River in Quebec, and on out the St. Lawrence to the Atlantic Ocean.

120 miles long, it drains a watershed of over 8,200 square miles.



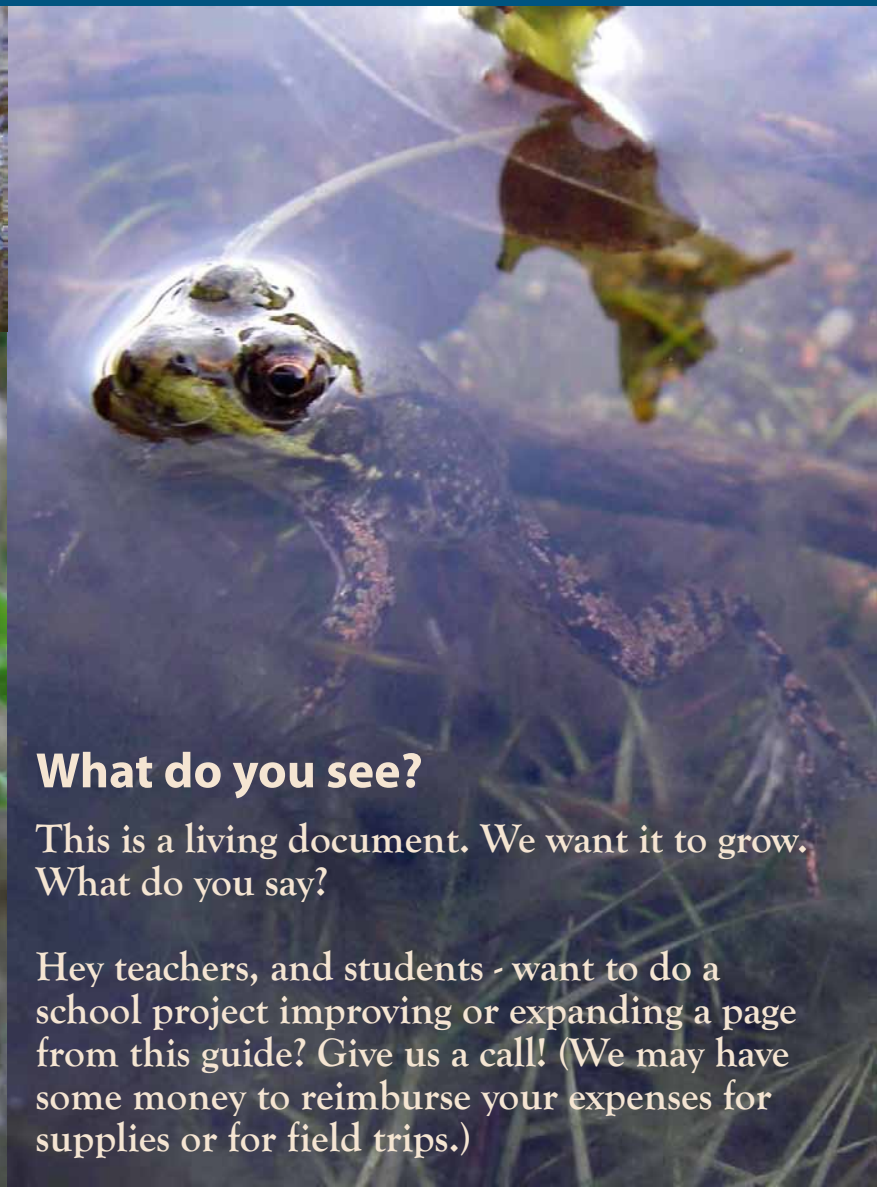
map by Northern Cartographic

The Cross Vermont Trail route starts and ends on the shores of Lake Champlain, in Burlington. The lake forms the border of Vermont and New York.

look closer

Along the
Cross Vermont Trail

photos Zyla Nuite



What do you see?

This is a living document. We want it to grow. What do you say?

Hey teachers, and students - want to do a school project improving or expanding a page from this guide? Give us a call! (We may have some money to reimburse your expenses for supplies or for field trips.)