

WINOOSKI RIVER

Sojourn

2009



**River
Guide**



The Friends of the Winooski River



www.winooskiriver.org

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Sojourn

2009

The Friends of the Winooski River welcomes you to the Winooski River Sojourn! The goal of the annual Sojourn is to connect people to this wonderful Vermont resource, to each other and to the communities along the river.

The Friends are committed to the restoration and protection of the Winooski River and its watershed. To that end, the Friends implement many types of projects including riparian and stream bank restoration, landowner stewardship including the facilitation of conservation easements, planning and water quality monitoring. We work in partnership with a wide range of organizations from local volunteer groups, businesses and town leaders to state and federal agencies in order to leverage resources and expertise. Since most people relate to the river on a scale smaller than the Winooski as a whole, we work on a tributary basis to maximize local input and involvement. The vision and energy of the local community are critical factors to any watershed protection effort.

If you are interested in finding out more about the Winooski River or getting involved with the Friends, please visit us at www.winooskiriver.org, email fwr@sover.net, or call 802-655-4878.

About the River

The Winooski River begins in the town of Cabot and flows 90 miles to Lake Champlain in Colchester. The watershed drains approximately



Colin McCaffrey

Coits Pond: Headwaters of the Winooski River.

1,080 square miles in central Vermont, encompassing all of Washington County, about half of Chittenden County, and portions of Lamoille and Orange Counties. The Winooski River is the largest tributary watershed to Lake Champlain. It includes almost 10% of the land area of Vermont.

The river and tributaries from the head to Montpelier are mostly narrow and steep with heavily timbered valleys. Below Montpelier, the river has a relatively consistent gradient with fertile open land well suited for cultivation except for a few steep gorges. The Middlesex, Bolton and Winooski gorges facilitate the harnessing of hydropower and have attracted mills and the development of towns dating to the late 1700s. The river has seven major tributaries: Little River, North Branch and Kingsbury Branch enter from the north and the Huntington River, Mad River, Dog River and Stevens Branch enter from the south.

River River Winooski statistics

- Approximately 1/3 of the population of Vermont lives in the Winooski Watershed
- Over 70% of the watershed is forested, about 12% in agriculture, 9% is developed, 5% is water
- About 11% of the watershed is publicly owned land.
- The percentage of the watershed in agriculture has dropped to its current level from 45% in 1950. This farmland has been replaced by developed land (residential and commercial) as well as reverted to forest land.
- The name Winooski is derived from the Abenaki word 'Winooskik' which means wild onion. For a period in the late 1700s to early 1800s, the river was more commonly called the Onion River.
- Approximately 90 dams dot the Winooski watershed although only a handful now function for flood control and/or power generation. Many are old mill dams.



Charles Fish

Waterfall on a tributary.

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Paddling maps are courtesy of the Winooski Valley Park District.



Celebrating the Winooski River generating 9.5 billion kilowatthours of clean, renewable electricity in 113 years!

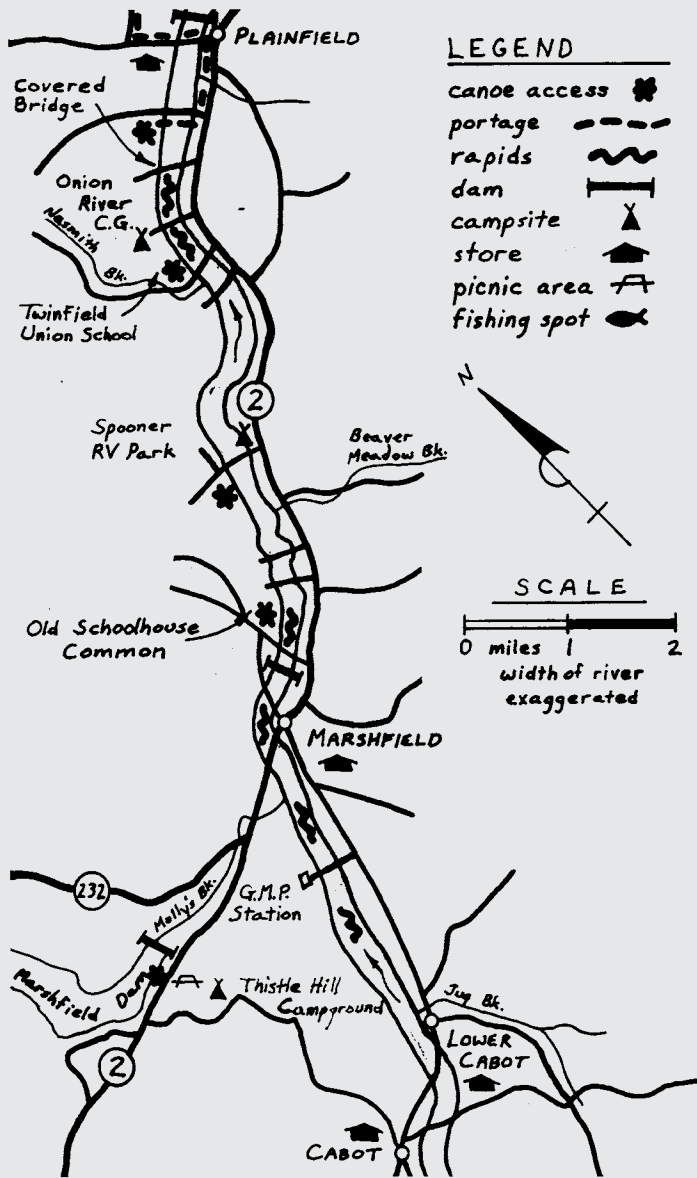
That's quite an accomplishment for a beautiful Vermont river, especially considering that one home uses 8,000 kilowatthours a year.

Green Mountain Power has operated hydroelectric plants along the Winooski and its tributaries since 1896. Green Mountain Power is supporting the Sojourn in recognition of the importance of the Winooski River in providing clean, renewable electricity to our customers.

Come join us for a tour of our hydro plant in Essex Junction on Saturday morning at 9:30 a.m. and 11:00 a.m. on June 27. For information call 802-655-4878.



CABOT TO PLAINFIELD • DAY 1



Section 1: June 23rd – Marshfield to East Montpelier Length: 12 miles

The put in is at the blacksmith shop a couple miles downstream from Marshfield Village. The first couple of miles are generally smooth water in a narrow and winding channel. Shortly after passing Twinfield Union School, the gradient increases and you will encounter class I/II rapids. You should have good boat handling skills in this section to avoid pinning on rocks. We will take out above the dam in Plainfield Village in the late morning. This will coincide with our lunch stop. The boats will be loaded on vehicles and transported to the afternoon put in where the river crosses under Route 2.

After Route 2, the river widens a bit and meanders through pasture and woodland. The river passes through East Montpelier about 4 miles downstream. There is a short rocky class I/II section as the river approaches Rte 14. The river will cross back under Route 2 and the takeout is shortly downstream, just above the first of a series of three dams. The boats will be taken by trailer to Montpelier High School, the put in for the next day.

Fishing Tips

The Winooski is one of the most popular fisheries in the state. From clear, cold mountain streams full of wild brook trout in the headwaters, to the lazy meandering bass, perch and panfish habitat in the final stretches, it is home to a multitude of species. Some of the most popular game fish to be caught are: brook, brown and rainbow trout; perch and walleye; smallmouth and largemouth bass; and landlocked salmon. Be sure to purchase a fishing license and check state regulations for fishing season dates and times.

Trout

Trout fishing is open from the second Saturday in April to the last Sunday in October. Trout can be readily caught on live bait such as worms or grasshoppers, artificial flies and nymphs, or with lures such as spinners and spoons. Some popular lures are Mepps, Panther Martin and Rooster Tail spinners, Phoebe and Daredevil spoons. Popular flies include Woolly Buzzer, Hare's Ear Nymph, Hendrickson patterns, beadhead nymph, Muddler Minnows, Golden Demon, Hornberg.



Trout can be challenging to catch. There is often a lot of the river where they simply aren't dwelling. Long shallow stretches of river with no logs, ledge or stone to hide behind will most often be devoid of trout. They prefer the oxygenated water below falls or riffles. They almost invariably orient themselves upstream so they are often best approached from the side or from downstream. If you can see them, they can often see you and may have already "spooked". Luckily the bigger waters of the river from East Montpelier down are easier to fish because they tend to be deeper and provide much more cover.

The section of river from the top of Bolton Dam upstream to the Route 2 Bridge east of Waterbury Village is trophy water. Affectionately



Fishing the Dog River, tributary of the Winooski

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My Winooski, Then and Now

by Charles Fish

Everyone is born, lives, and dies in a watershed, but not everyone has the good fortune to grow up on intimate terms with a river. It was my great good luck to grow up in a time and place—the 1940s and 50s in Essex Junction—in which the woods and river were my playgrounds. I waded in the impoundment behind the Essex dam, casting for smallmouth bass; I explored the extensive outcropping of bedrock next to the Green Mountain Power hydroelectric plant, dropping a line for perch in the river-sculpted pools. On a hot day, I might even go for a swim, although this was frowned upon by my parents. Not only was the river dangerous, it was heavily polluted. Where the village sewer spilled into the river, you could always find worms for the day's fishing.

I couldn't have known it then, but in retrospect the dam, powerhouse, and bedrock were like omens of a double blessing, for fifty years later I returned to the river to study these and other features of the natural and human landscape.

Hiking and canoeing, I explored the watershed from Cabot to Lake Champlain with forays up several tributaries as well. Although the largest watershed entirely within Vermont, the Winooski is small as watersheds go, but even so, I could only sample its riches. A travel route as long as humans have occupied the valley (at least 10,000 years), a site of pre-contact and modern agriculture, a treasure-house of natural resources (timber, fish, game, fur, stone, sand, gravel), a source of power from early grist and sawmills to modern hydroelectric plants and woolen mills, a recreation paradise for sportsmen and boaters, and a discharge route for human waste from two centuries of raw dumping to the treated effluent of modern wastewater plants—even this small valley is a network of vast complexity.

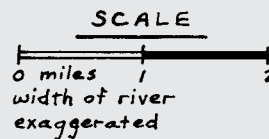
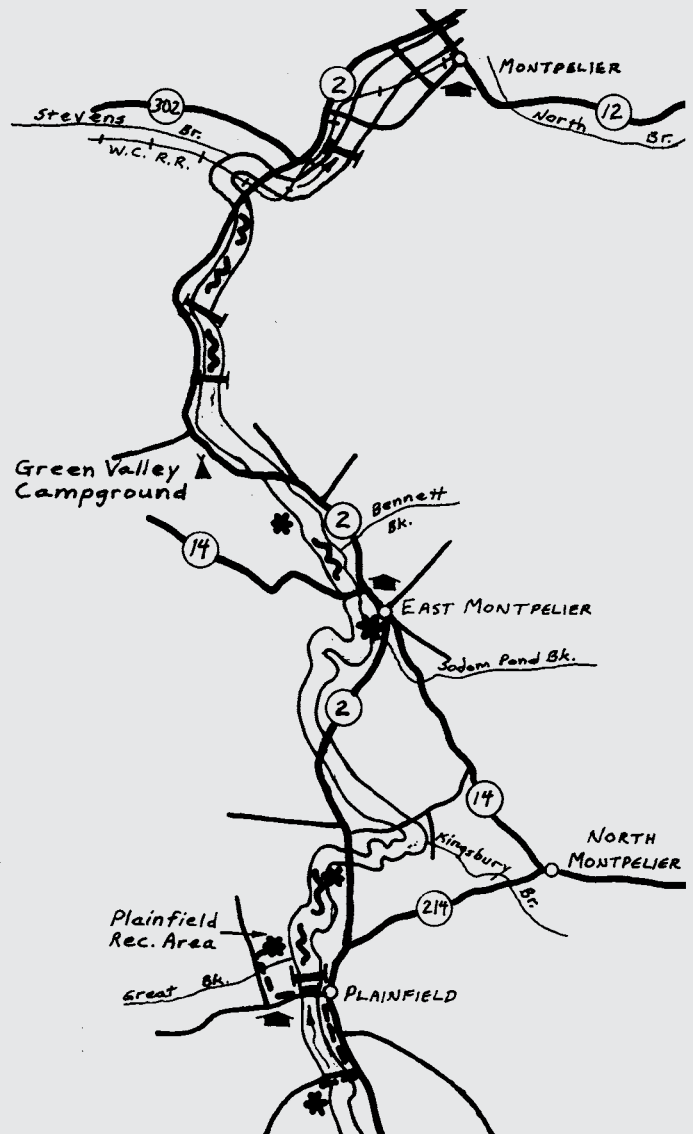
Some aspects of my journey were a return to the past. I revisited places that loomed large in the memory of a happy boyhood. I picked my way over the water-worn bedrock below the dam in Essex, I trespassed across the railroad trestle by the IBM plant, and I found the crumbled remains of the haunted house in North Williston in an area once a dust bowl before my time, long since reforested by intelligent human effort.

My larger purpose, though, was to add the perspectives of others to my limited view of the valley. I sought the help of many obliging,

continued on page 6



PLAINFIELD TO MONTPELIER • DAY 1



LEGEND

- canoe access
- portage
- rapids
- dam
- campsite
- store
- picnic area
- fishing spot

MONTPELIER TO BOLTON • DAY 2 (PART OF DAY 3)

Section 2: June 24th — Montpelier to Waterbury Length: 11 miles

The river becomes considerably wider below Montpelier. This section is mostly flat with a steady but not fast current. The river winds past farm houses and pasture land. About 2.5 miles below Montpelier, there is a short rapid. It can be easily portaged on the left side of the river. We will reach the Middlesex Gorge dam (5.5 miles from Montpelier) in the late morning. The Middlesex Gorge is one of the most spectacular areas on the river with rock walls towering 75 feet. The portage is short so some boats will be carried around the dam. However, we will have some vehicular support as well.

Just below the dam, there is a short straight forward rapid (class I/II). It can be portaged on the left. Our lunch stop will be near the mouth of the Mad River. Shortly after the Mad River enters the Winooski (approximately 2 more miles) there is another rapid know as Junkyard Rapid. Depending on the water level, this rapid (class I/II) can be run by those with strong boat handling skills. The rapid is short and easily portaged on the left.

Below this rapid, several old iron anchor rings can be seen in the rocks in the center and on the south bank. These rings may have been used to by logging crews to control the timber as it was moved downstream. We will arrive in Waterbury in the late afternoon.

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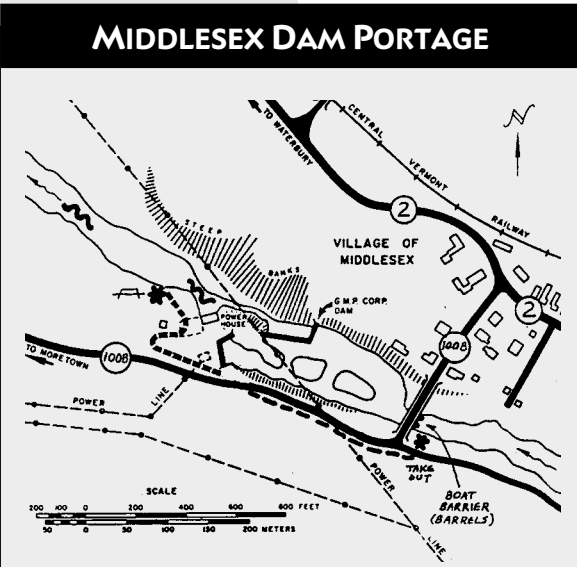
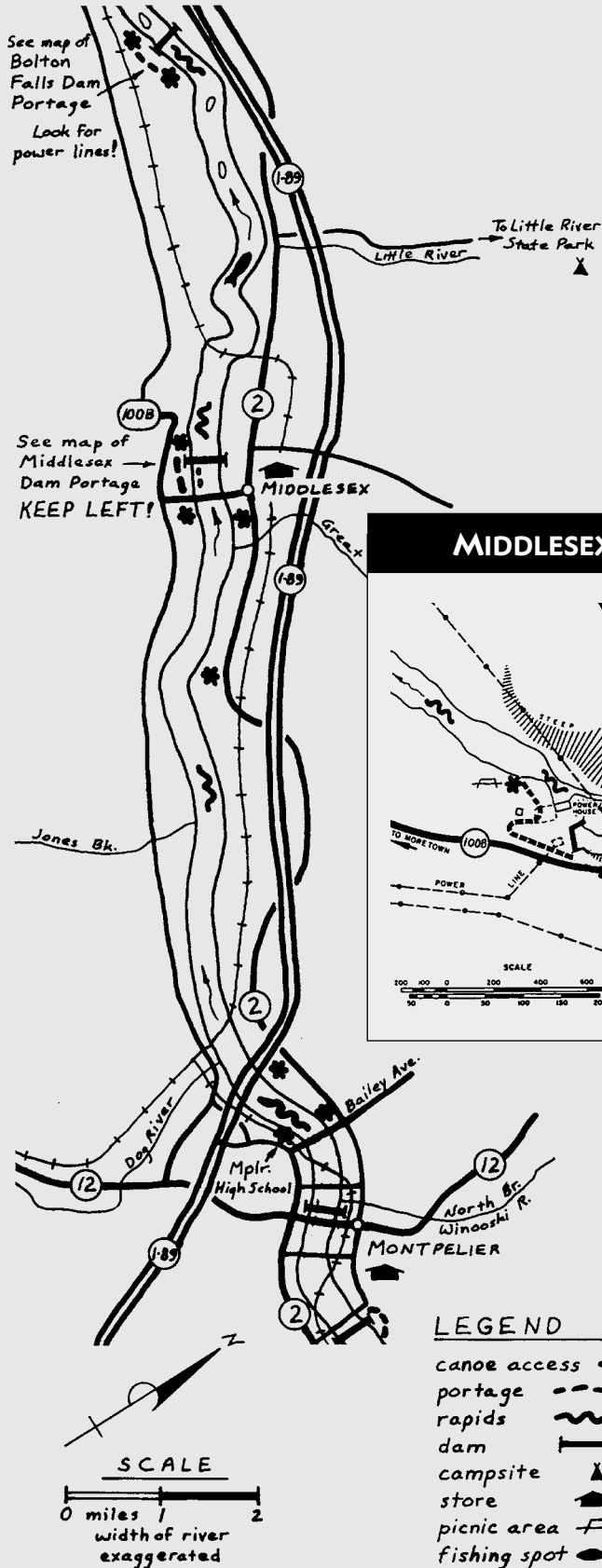
My Winooski, Then and Now *continued from page 5*

generous people, among them geologists, hydroelectric engineers and operators, mill workers, farmers, hunters, fishermen, trappers, Native Americans, and habitat

specialists including fish and wildlife biologists. They helped me to see through eyes other than my own.

Too many conclusions resulted for easy summary, but I will venture one generalization, no doubt obvious to those for whom the river is of special interest. The human and the natural are inextricably interconnected in the Winooski Valley as, I suspect, throughout the world. However much we lament human damage to the natural environment, we are as much a part of this landscape as bass, otter, bear, and deer. Such an intimacy imposes obligations. To quote myself, if I may, we should remember, as Vermont's fish and wildlife biologists do, that our natural populations "are living beings entrusted to a wise care that is born of familiarity. 'Management' is a prosaic term, but disciplined by responsibility and inspired by love, it is a noble calling. We are the caretakers of the planet; we must attend. It is our fate."

In the Land of the Wild Onion: Travels Along Vermont's Winooski River (2006) is Charles Fish's account of his rediscovery of the Winooski watershed.



Time Travel on the Winooski

by George Springston, Norwich University Department of Geology and Environmental Science

Ever wonder what the Winooski River valley looked like long ago? Today the river flows from its headwaters in Cabot south and then southwest to Montpelier and then, turning northwest, it cuts straight through the Green Mountains on a beeline for Lake Champlain. How long has the river followed this course? What came before? The geologic story of the Winooski valley is one of plate tectonics and continental glaciation, but it's also a story of streams, which over vast stretches of time can tear down even the highest mountain ranges.

If you travelled through this part of Vermont in the Cretaceous Period (144 to 65 million years ago), you might have been on a long hike across a range of hills or low mountains where the Green Mountains stand today. There may already have been a lowland in the Champlain Valley with streams flowing westward out of the hills, but the details of these ancient stream systems are unknown. These small hills were the remnants of great mountain ranges built up in the Devonian Period (417 to 354 million years ago), but the unrelenting erosive action of streams acting over millions of years had long ago worn them down. Instead of mountain-building, the Earth's crust here during the Cretaceous was being stretched and broken by the same stresses that were causing the opening of the Atlantic Ocean to the

east. Away to the southeast and east, you might have seen plumes of ash from active volcanoes at Mount Ascutney and in the White Mountains. Earthquakes may have been rather common.

An ancestral Winooski River appears to have already been flowing northwestward across central Vermont when renewed uplift of the crust took place sometime during the later parts of the Cretaceous or during the subsequent Tertiary Period (65 to 1.8 million years ago.) The uplift was a sort of gentle, regional uplift. Although the rocks of the Green Mountains were generally quite resistant to erosion, the ancient Winooski was able to keep pace by eroding downward as uplift continued, perhaps because it was already flowing in a zone of weaker (perhaps more fractured) rock. Much of this is speculation, but we do know that the Winooski and its sisters the Lamoille and Missisquoi today cut across the Greens and indeed appear to have done so since before the Pleistocene glaciation. We don't know anything about the boating conditions on this early Winooski, but fossil plants found in a lignite (brown coal) deposit at Brandon, Vermont indicate we had a warm-temperate climate about 20 million years ago. The fossils include those of hickories, chestnuts, mulberries, black gums, sycamores, and many others.

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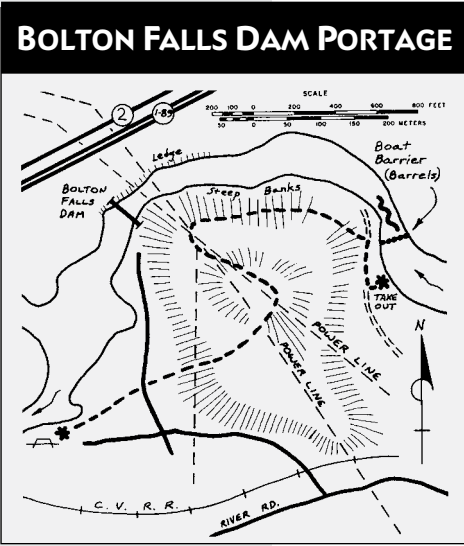
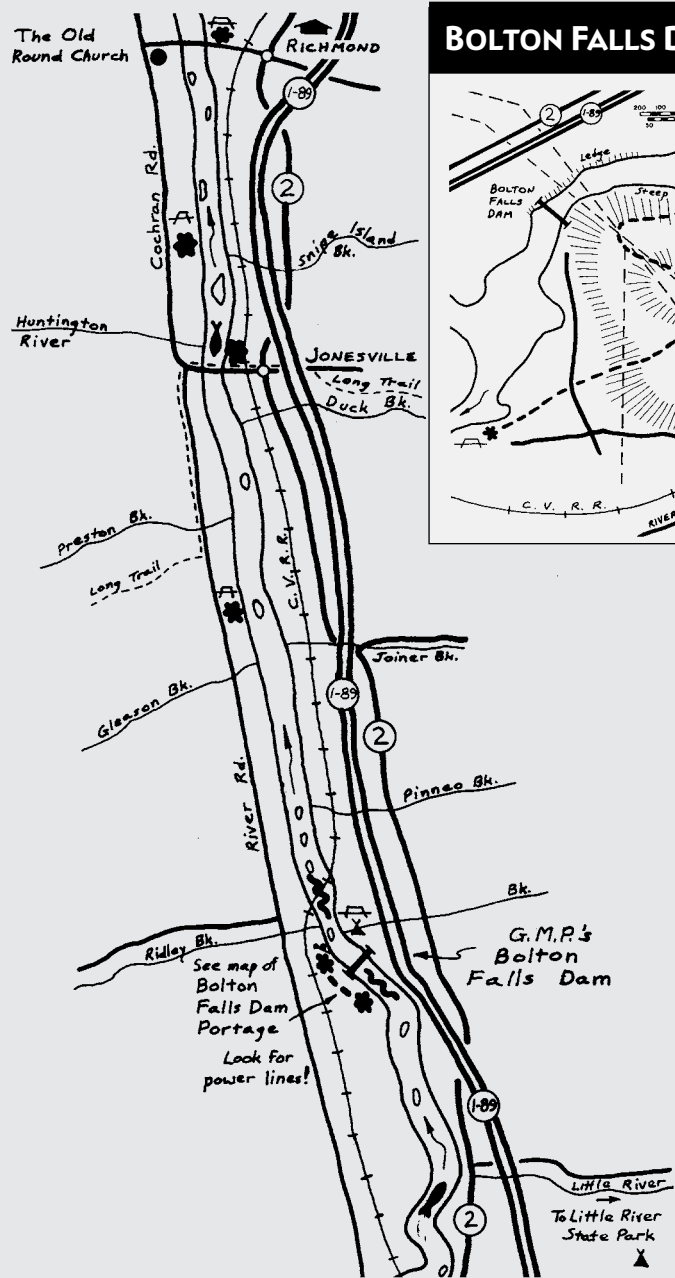
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BOLTON TO RICHMOND DAY 3



Section 3: June 25th – Waterbury to Richmond – Length: 15 miles

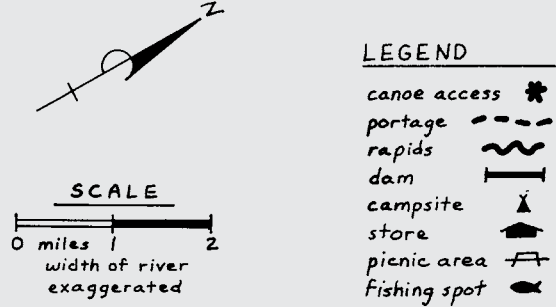
This section of the river is mostly flat with a steady current. The Little River flows in from the right, shortly after Waterbury. There is one significant portage around Bolton Dam that will be done with vehicular support. This portage will correspond with our lunch stop. More advanced paddlers will put in directly below the dam and run a rapid known as the Trestle Rapid (class I/II). Other paddlers will join this group at an alternative put in about 1 mile downstream.

The rock ledge in the Bolton Narrows is called Allen's Rock, after Ira Allen, one of the original Green Mountain Boys. According to legend, Allen distinguished himself by standing at the edge of the cliff and staring straight down without fear or hesitation.

This scenic stretch of river bisects the Green Mountains and passes through northern hardwood forest and farms. In this section, you will pass by Camel's Hump, one of the most prominent peaks in the Green Mountains. Camel's Hump is easily recognized by its unique double hump profile. Just upstream of Richmond, the Huntington River joins the Winooski River. We will reach Richmond late in the afternoon.



View from above Bolton Dam.



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Thank You 2009 Sojourners!

Charles Fish

Time Travel on the Winooski

continued from page 7

You would have been quite the adventurer to attempt to follow the route of the Winooski 25,000 years ago during the “ice ages” of the Pleistocene. An ice axe, crampons, and plenty of warm clothing would have been very handy on such an expedition, as the Laurentide Ice Sheet was at its maximum extent, blanketing all of eastern and central North America as far south as Long Island and Martha’s Vineyard under about a mile of ice. You couldn’t have seen it, but the massive weight of the ice had depressed the Earth’s crust by hundreds of feet. This was just the most recent of many ice sheets that came and went over the region in the last 1.8 million years or so.

About 14,000 years ago it would have been a water journey again, but with a lot of paddling, for the valley was filled with the turbid waters of glacial Lake Winooski, which extended from up in Lower Cabot all the way to Richmond, filling the main valley and all the tributary valleys to elevations of about 1,000 feet above present

sea level. The clay deposits encountered at many sites in the valley were deposited in this lake. At that time, the retreating ice blocked the northern Champlain valley and the lower Winooski valley west of Richmond, and the waters of Lake Winooski spilled over the hills at the lowest point, which was Williamstown Gulf. From there, the outflow rushed down the valley of the Second Branch of the White River to an arm of the great inland lake known as glacial Lake Hitchcock, which filled the Connecticut River valley and drained south to Long Island Sound.

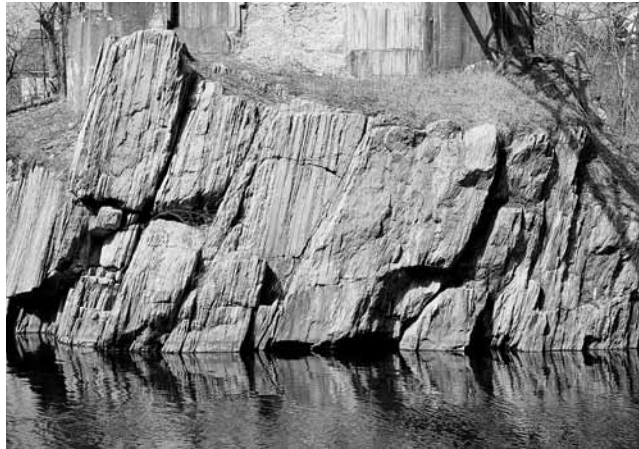
After the ice sheet melted back further northward, lower drainage routes for the lake opened up at Gillett Pond in Richmond and then Hollow Brook in Huntington, causing two new stages of the glacial lake in the Winooski valley (these lower stages are called glacial Lakes Mansfield I and II) and sending the waters pouring out at Hinesburg into the larger ancestor of Lake Champlain called the Coveville stage of glacial Lake Vermont. The thick sand and gravel deposits at about 600 feet elevation at Hinesburg are remnants of a delta built out into Lake

Vermont, which drained southward through the Hudson River valley (the ice sheet still blocked any drainage to the north). Finally, you could make it to the Champlain valley by boat, although there might have been some serious white water stretches to navigate as the waters rushed through the outlet stream. What would the landscape have looked like at this time? The pollen and other plant remains preserved in bogs indicate that the landscape south of the Winooski River was probably some combination of tundra and sparse boreal woodland. Spruce, birch, one of the pines (jack or red?), and poplar were early arrivals. To the north, you would have seen the great ice margin, with torrents of meltwater rushing out from under the ice on every summer day.

Coming back a few hundred years later, you’d see that even more melting of the ice sheet had opened up the lower Winooski valley, with the waters of the Late Pleistocene Winooski River emptying into a lower level of glacial Lake Vermont called the Fort Ann stage. The broad terraces you can see today at about 500 feet elevation in the center of Williston and north of the Winooski River in Essex Junction record this level of Lake Vermont.

Continued ice retreat led to more lowering of the water levels in Lake Vermont. Eventually (about 13,000 years ago) the ice retreated north of the St. Lawrence River, and the waters of the sea poured in to form the brackish waters of the Champlain Sea. The Burlington Airport is built on a vast delta (now about 350 feet above sea level) formed from sediments of the Winooski River that built out into the Sea. After about 3,000 to 4,000 years, rebounding of the land due to the removal of the great weight of the ice sheets cut the Champlain Sea off from the St. Lawrence estuary and led to the formation of Lake Champlain. The land was now largely forested.

If you made the trip around 8,000 to 9,000 years ago, you could certainly boat from modern-day Cabot to the shore of Lake Champlain. However, because it took time for the river to cut down through all the lake-bottom sediments left behind by Lake Winooski, the course of the river (at least in the upper reaches) may have been some feet higher than today. Remnants of the old floodplains from this time stand as terraces many feet above the present river floodplain. Studies on the lower Missisquoi and elsewhere show that sedimentation and river channel migration in the lower reaches of the rivers were quite rapid after the end of the Champlain Sea episode as tremendous amounts of sediment were eroded off the newly exposed hillsides and excavated out of the valley bottoms in the upper reaches. However, the sedimentation rates slowed down over time, due at least partly to increasing vegetative cover and developing soils. One by one, ash, balsam fir, larch, elm, oak, maple, white pine, and hemlock joined the earlier arrivals. Plenty of changes were still to come (for example: in terms of tree species beech, hickory, and chestnut were still not present) but the broad elements of mountains, river system, and forests were finally taking on the appearance they would have up until the time of European settlement.



Charles Fish

Middlesex bedrock folds



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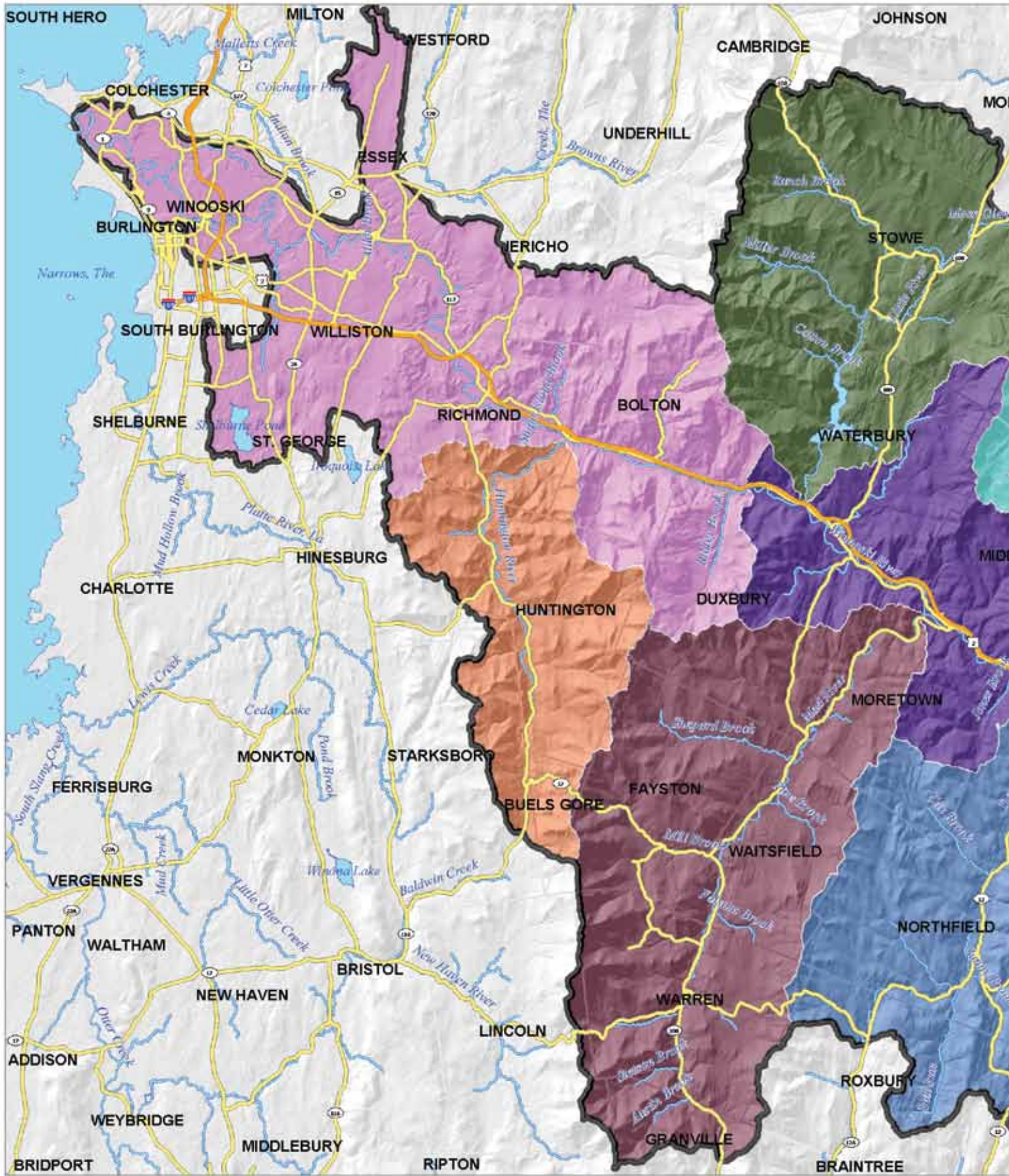
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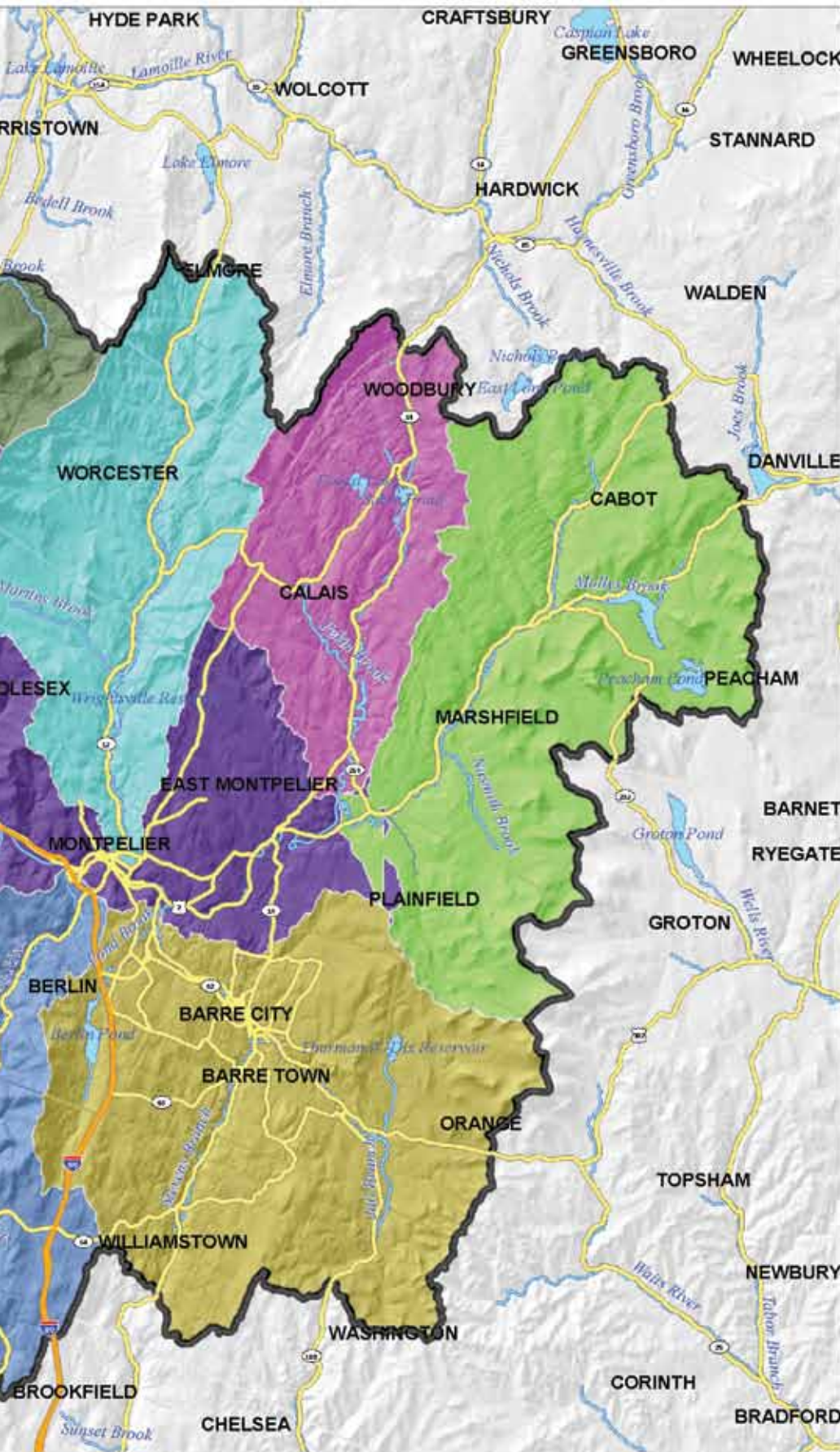
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Winooski Watershed and Sub Basins



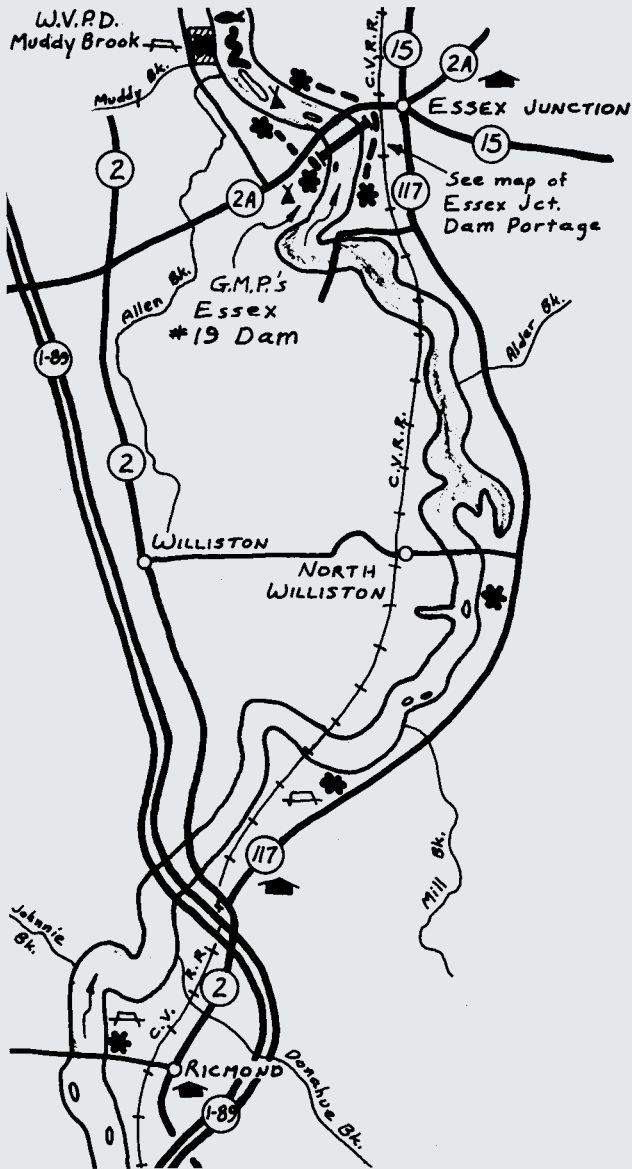
Legend

-  Dog River Basin
-  Headwaters Sub-basin
-  Huntington Sub-basin
-  Kingsbury Basin
-  Little River Sub-basin
-  Mad River Basin
-  Mainstem Upper Winooski
-  North Branch Winooski
-  Stevens Branch Sub-basin
-  Lower Winooski
-  Entire Winooski Basin
-  Interstate
-  Arterial and Collector Road
-  VT Town Boundaries



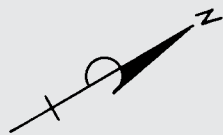
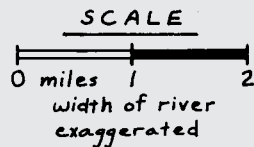
This map is for illustrative purposes only. The accuracy of the data layers shown on this map are limited by the accuracy of the source materials. The Vermont Agency of Natural Resources is not responsible for errors in or misuse of the data. No warranty as to the accuracy or the usefulness of the data is expressed or implied.
August 18, 2008

RICHMOND TO ESSEX • DAY 4



LEGEND

canoe access	✿
portage	- - -
rapids	~~~~~
dam	▬
campsite	▲
store	■
picnic area	⌘
fishing spot	🐟



Section 4: June 26th — Richmond to Essex Length: 11.5 miles

The stretch from Richmond to Essex is broad and flat, flowing through fields, woodlands and residential areas. The river becomes extremely wide and almost lake-like behind the dam in Essex. This Green Mountain Power dam sits in one of the natural gorges of the Winooski River. We take out for the day just above this dam. The boats will be transported to just below the dam for the next day's put in.

Fishing Tips

continued from page 4

called the "Waterbury Zoo" by some anglers, this stretch holds some monstrous fish. Catch and release is strongly encouraged! The daily creel limit is two fish.

When the river warms up in July and August, many of the trout species congregate in the mouths of feeder streams where the water is cooler. The outlets of Hydro dams - the Little River in Waterbury for one - tend to be cooler and more oxygenated, making these waters prime location for rainbow and brown trout in the summer months.

Salmon

Salmon may occasionally be hooked in lower reaches. They are stocked by the state as fingerlings or Parr. Adult fish are often netted and trucked upstream of Hydro dams as they migrate to spawn from Lake Champlain. These fish put on a remarkable fight for their size, but read the regulations carefully about limits and season dates.

Bass

Bass, especially smallmouth, have made the lower reaches a popular destination for anglers in love with this feisty fish. From Bolton Falls down to the lake they can be readily caught on many of the same lures and baits as trout. In addition bass bugs and hula-poppers are popular fly-rod choices for surface fishing

Walleye

Perhaps one of the finest tasting fish in the world, Walleye can be found in the lower reaches of the river and - like the salmon - is trucked past the hydro dams on it's way to spawn. Large double-jointed weighted Rapala type lures fished slowly through eddies will sometimes hook this sluggish fighter. It does not like the heat of summer and will often hole up in cooler waters through July and August.

Perch and Panfish

Found in many of the slower moving stretches and impoundments these fish are eager to bite and provide hours of enjoyment especially for children. They require minimal skill to catch and they exist in abundance. The same goes for the fallfish, a huge member of the minnow family. This fish puts up a noble fight and tricks many anglers into thinking it is a trout. Small weighted jigs and live bait are effective for panfish as well as smaller spinners and spoons.

Trees Along the Winooski

by Jan Albers

The Winooski River was one of the great water highways for European settlers looking for land in the future Vermont. A settlement map of the state shows, predictably, that land along the River was settled earlier than that further inland. Lake Champlain made for easy access, as boat travel through the wilderness was much easier than hacking through the forests overland. Settlements were appearing on the banks of the Chittenden County section of the Winooski in the decade before the American Revolution, reaching well past Montpelier by the early 1780s. When the Republic of Vermont became a state in 1791, the banks of the Winooski were settled right to the source.

The first settlers found cleared areas and cornfields along the Winooski, where the Abenaki had long had settlements and practiced agriculture. Connecticut-born Ira Allen and his brothers started the Onion River Company, which soon came to control most of the land in the Winooski watershed. They surveyed it, chopped it into parcels and sold it off to land speculators, who sold it on to eager settlers.

The newcomers found themselves surrounded by a world of trees. In the primeval forests of our imaginations all the trees are massive and old, towering like sequoias, dense and untouched. This is largely

a fantasy. Charles Cogbill showed that most of the trees that grew in Vermont had life spans of 200-300 years, but within a given forest many individual trees were felled by climate change, fire, hurricanes, insects, ice storms and, increasingly, the hands of Native people. We know that the density of the 18th century forest was about what it is today, but the composition was somewhat different from our own. There were far more beech and half as many maples, so the forests glowed yellow rather than red in the fall.

The immigrants brought unprecedented change to the forest. The trees were a barrier to their dreams of making this new world a well-tended garden. They could not cut them down fast enough. It would be hard to exaggerate the environmental impact of the Yankee settlement of Vermont. These people—most of them young, reared in southern New England and 95% of English origins—believed they were here to bring civilization. The trees might turn a quick initial profit for lumber and potash, but the primary objective was to get them out of the way and get on with farming.

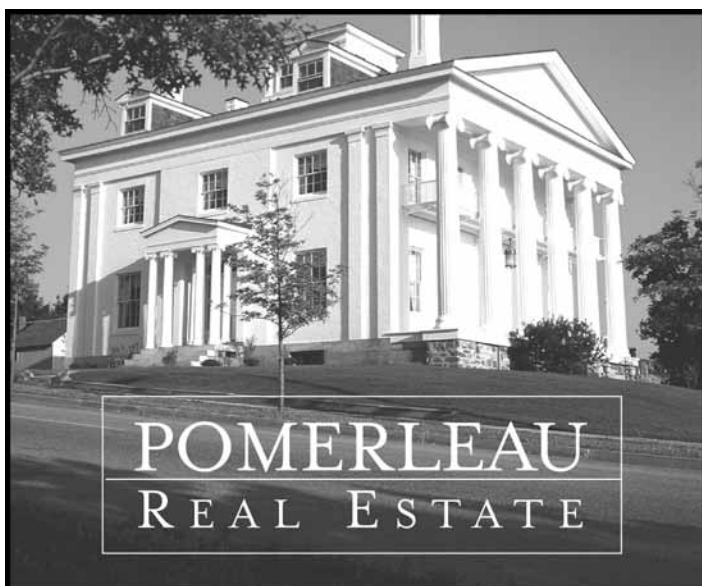
The trees went down with stunning rapidity, laying bare the soils and destroying the habitats of all those creatures that had made the woods their home. The settlers rejoiced in their progress, even as they were confronted with its aftermath. Stalking catamounts, packs of wolves and displaced bears threatened the farmyards. The small creatures of the forest retreated or died. Otters, beavers, deer, moose—all the animals previously abundant became scarce.

The great clearing also changed the land itself. The moist, cool shade of the woods was replaced by the dry warmth of open land. When the rains came, no great tree roots held the land in place. The hills became prone to flash floods. The mighty Winooski ran brown as topsoil eroded away. Small streams dried up, often stranding the earliest sawmills with no waterpower.

The clearing continued, on and on, throughout the 19th Century, as people pursued their agricultural dreams. By 1880, Vermont was topping out at over 35,000 farms. The landscape was now about 70% deforested—a mirror image of today, when about 70% of Vermont is, again, forested. Most of the hills that line the Winooski River would have been devoid of trees—their wavy contours covered with crops and rocks. The open views had their own beauty, but it came at a high price.

The Vermont landscape boom was already beginning to go bust—at least for the hill farmers. While land in the Winooski River Valley was fertile and flat, the soils quickly thinned out as you climbed the hills. The agricultural world was splitting into the prosperous valley farms, increasingly converting to dairy in the late-19th Century, and the hardscrabble hill farms. Thin soil played out and prices fell. The newest Vermont export was people, headed out to try their hand at farming in the opening Midwest. Thousands of farms in the higher reaches of the Winooski watershed were simply abandoned.

The farmers' loss has been in environment's gain, as poverty, public policy and private initiatives have combined to bring about the



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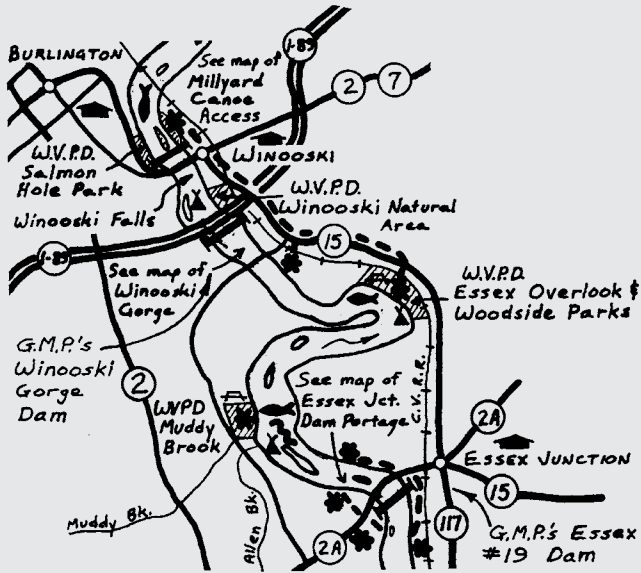
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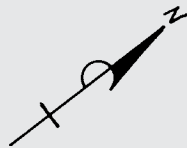
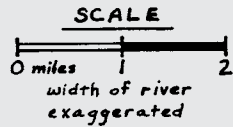
continued on page 14

ESSEX TO WINOOSKI • DAY 5 (PART OF DAY 6)



LEGEND

- canoe access * (flower symbol)
- portage - - - (dashed line)
- rapids ~~~~~ (wavy line)
- dam ——— (thick horizontal line)
- campsite X (X symbol)
- store ▲ (triangle symbol)
- picnic area ▭ (rectangle symbol)
- fishing spot 🐟 (fish symbol)



Section 5: June 27th — Essex to Winooski Length: 7 miles

The put in for this stretch is just below the power dam. Looking upstream from the put in provides a spectacular view of the natural rock gorge. This section, depending upon water level, can be very rocky. Paddlers should have solid boat handling skills or be prepared to portage their boat approximately 1/5 mile along a shoreline path. This rapid is shortly below the put in at the Essex Dam.

There are two Winooski Valley Park District units in this section. The Muddy Brook unit is on the left, about a mile downstream from the dam after a large island. Woodside Park is approximately 2 more miles downstream on the right. On this day, paddlers will pass through the short but spectacular Lime Kiln Gorge, the only undammed gorge on the Winooski River.

We will take out for the dam just above the Winooski Gorge dam, another spectacular rocky spot.



Winooski Gorge

Charles Fish

Ryan McCall



2008 Sojourn at Bolton Dam

Trees Along the Winooski

continued from page 13

reforestation of much of the Winooski basin over the course of the 20th Century. Agriculture has almost disappeared from the Chittenden County stretch of the Winooski, replaced by commercial properties and encroaching residential development. Upstream, the returning forests are vital to ski areas and other recreational developments, as well as lumbering.

The Winooski the settlers saw is gone forever, but the great basin is far healthier today than it was a century ago. The waters may not be as clean as we would like them to be, but they are cleaner than they were. Erosion is mitigated and many animal habitats have been restored. The great forest lungs are breathing once more on the banks of the Winooski.

Winooski River Mills

by Vince Feeney

What first attracted settlers of European stock to the valley of the Winooski River was fertile intervale soil and the potential for water power. Besides the ability to grow crops the pioneer settlers desperately needed saw mills and grist mills. With abundant forest resources, saw mills allowed the settlers to turn logs into lumber that eventually went into houses, churches and schools. Grist mills, with their large circular mill stones, took the grain from the farmer's fields—wheat, oats and rye—and ground it into flour, a basic food source on the Vermont frontier. And it was water power that moved the saws and turned the mill stones.

This water power operated mechanically. Water diverted from the river turned a waterwheel and then through a series of wooden gearings and leather belts turned the saws and the millstones. Sometimes a dam was built to create the drop or "head" necessary to turn the waterwheel, but if there was a natural drop as would be the case with a waterfall, a dam might not be necessary. In that case a mill was simply built adjacent to the waterfall, water was diverted through the mill where it turned the waterwheel, and then released back to the river below. Until the widespread introduction of electricity in the 1870s it was mechanical power from water that operated the mills.

By 1800 a series of grist and saw mills dotted the Winooski River

from Burlington to Cabot. As early as 1783 Ira Allen, Ethan's youngest brother, had built sawmills at the falls in what is today Winooski, while just a few years later, on the Burlington side of the river, businessman Moses Catlin operated a massive stone grist mill. That building, greatly expanded upon, existed until 1927 when the great flood of that year necessitated its destruction.

Down to the end of the nineteenth century grist and saw mills were important businesses on the Winooski River. In 1870 one mill that combined saw and gristmill operations in East Montpelier produced 300,000 board feet of lumber and ground 5,150 bushels of grain. Eventually the importance of saw and gristmills on the Winooski declined as loggers depleted the Green Mountain forests and the Midwest became America's breadbasket.

Of almost equal importance to the saw and grist mills were the mills associated with textiles. Beginning in the early 1800s small scale carding and fulling mills operated in Winooski, Essex and Montpelier. Local farmers brought raw wool to the mill where it was straightened in carding machines. With straightening complete the farmer returned home with the reworked wool where wives and daughters spun it into yarn and then wove it into cloth on a hand loom. The final step in the process saw the farmer bring the cloth back to the mill where a fulling machine shrank the fabric to make it bulkier.

By the 1830s these primitive early operations had evolved into large mill works which contained every step in the cloth making process—from carding, spinning and weaving to dyeing. The largest and most long-lived of the textile mills on the Winooski River was the American Woolen Company's complex in Winooski. During the Second World War it employed over 3,000 men and women and was the largest private employer in the state. The last of the Winooski River textile mills, it ceased operations in 1954 when labor costs made it uncompetitive with mills in the South.

Today only a few remaining mill buildings in Winooski and the crumbling remains of dams found up and down the river remind the canoer and kayaker of the waterways industrial past.



The historic Plainfield Mill dam.

Charles Fish

Winooski River

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ETHAN ALLEN HOMESTEAD TO THE LAKE • DAY 6

Section 6: June 28th – Winooski to Lake Champlain Length: 10 miles

The river between the City of Winooski and Lake Champlain meanders through flat terrain which quickly changes from an urban setting to farms and forestland.

Just above the Millyard access (the put in for the day) is a choice fishing spot known as Salmon Hole. Long appreciated by local fishermen for its walleye pike, steelhead trout, and landlocked salmon, this fishing hole nestled just below the Winooski Falls.

Downriver of the Millyard access, near the railroad bridge, is the site of the first clearings in the Winooski Valley in 1773. But this is

also the site of a much earlier settlement: recent archaeological finds indicate that almost over 300 years before Ira and Ethan Allen settled on the river, the Winooski River's floodplain was farmed by Native Americans.

As you approach the railroad bridge, twisted girders and abutments of the original bridge, which was washed away in the infamous 1927 flood, become visible.



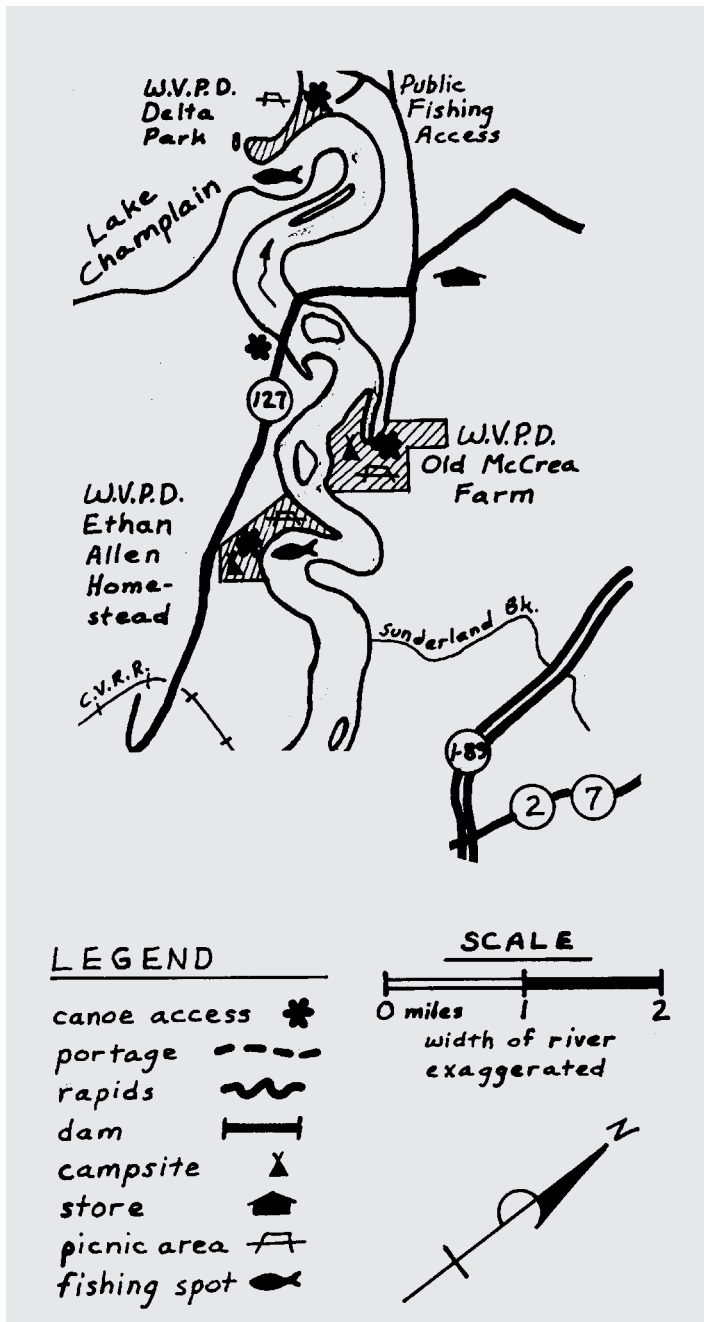
Lorilla Banbury


Paddling the 2008 Sojourn

About two and one-half miles below Winooski, we will stop at the Ethan Allen Homestead, which is owned by the WVPD.


After another 2.5 miles, paddlers will pass another WVPD unit, McCrea Farm. This 286-acre park is home to a wide variety of songbirds, ducks, and geese which visit the marsh in the lower portion of the park each year. In its quiet cove by the river, you may find blue winged teals, American bitterns and herons.

Continuing downstream, there are several other important wildlife areas. Derway Island, Half Moon Cove and Delta Park at the mouth of the Winooski River.





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Abenaki on the Winooski

by Fred Wiseman

After the great Ice age glaciers receded from what would become the Lake Champlain Basin 12,000 years ago, the Winooski Valley came alive with arctic tundra and animals such as the mammoth and caribou, while the sea held a rich arctic sea-mammal fauna from seals to whales. It also brought in the first human settlers; the distant ancestors of modern Native Americans. Archaeologists believe that these people were skillful hunters of both upland and marine animals, using harpoons and lances tipped with stone and bone points. They were also intrepid seafaring people, journeying from what is now Vermont hundreds of miles along the ice-choked St. Lawrence Basin and the Atlantic coast.

As time went on, these early settlers developed many new types of stone tools including ground stone, axes, adzes and gouges. All of which have been found in the Winooski Valley between the "Salmon



The "Salmon Hole" in Winooski

Hole" in Winooski as far upstream as Barre. These amazing tools tell of a sophisticated woodworking tradition practiced by the valley's inhabitants beginning over 6,000 years ago. Were they used for building dugout canoes, for embellishing the decoration of wood and bark houses or for some other decoration or utility? The moist soil of the Winooski Valley has not been kind to perishable materials and we can never be sure.

These early ancestors of the modern Abenaki people lived in camps and villages all along the Winooski, hunting deer, moose, and

small game; fishing and collecting everything from roots to fruits—the bounty of a fertile land. This way of life changed just over 1000 years ago when agriculture arrived in the Lake Champlain Basin. The wide rich alluvial valley of the Winooski River was the perfect place to raise corn, beans and squash — the staple crops of the Abenaki Indians. This

continued on next page

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Our presenters and entertainers:

Chittenden County Forester (Mike Snyder)
Natural Resource Conservation Service (Danny Peet)
Fred Wiseman of the Abenaki Cultural Center
Green Mountain Power
Lorenzo Whitcomb & Dave Skinas
The Medicinals
Skip Flanders
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US Fish and Wildlife Service (Frank Pendleton)
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Summit School
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City of Winooski
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Local Community Agricultural Exchange
Town of Richmond
UVM Watershed Alliance
Vermont Dept of Environmental Conservation
Vermont Natural Resources Council
Winooski Community Partnership
Winooski Natural Resource Conservation District

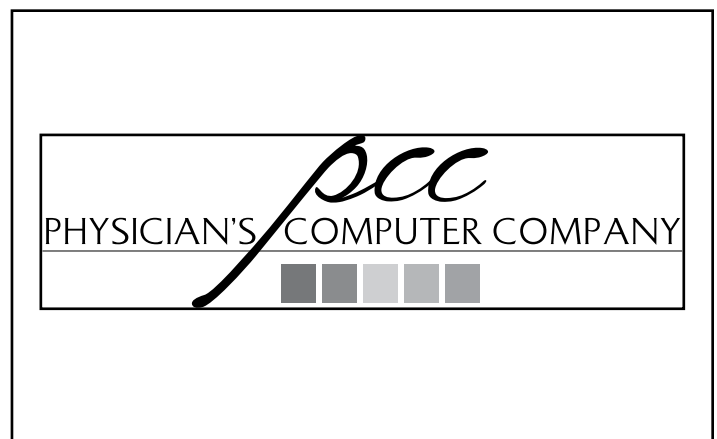
Abenaki on the Winooski

continued from page 17

abundance allowed populations to flourish — larger villages were built and the distinctive pottery from these villages have been found from Winooski to Richmond. This prosperity was disrupted around 500 years ago by Old World diseases brought by European explorers and traders that spread through the area, soon followed by warfare.

By the time the Abenakis greeted the Early French colonists they had already been severely decimated by disease and had to abandon large stretches of the Winooski due to attacks from other tribes across Lake Champlain. These early explorers and missionaries nevertheless recorded a settlement called "Winooskik" or "place of the wild onions" in the Abenaki language, probably referring to the area near the Salmon Hole that still has these distinctive plants growing on the cliffs overlooking the river. The colonial period was a hard time for the Abenakis, first having to retreat into the hills due to war; and later modify their identity to "hide in plain sight" — to become gypsies or perhaps "French" settlers.

As the nineteenth century evolved into the twentieth, the Winooski Valley Abenakis worked in the mills, and became part of Vermont life and culture, sometimes being seen as Indian healers, or guides, or craftspeople of necessities from snowshoes to baskets. The Abenaki language was apparently still spoken by families near the mouth of the Winooski as late as the 1930s. Today, the Winooski Valley's Abenakis proudly proclaim their identity as teachers and craftspeople, participating in the Abenaki culture at ceremonies and pow-wows. The 12,000 year old indigenous history can look forward to a bright future.



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Winooski River near Richmond

Friends in Action

The Friends of the Winooski River undertakes many types of projects in pursuit of our mission to protect and restore the Winooski River watershed. Our efforts include restoration projects, water quality monitoring and education.

Rose Paul



Clockwise from above: Learning about stream life; volunteer water quality monitoring; restoring riparian buffers.



George Springston



Dana Baker

The Cross Vermont Trail Association

The Cross Vermont Trail Association serves as a central hub to coordinate the efforts of the towns through which the Cross Vermont Trail (CVT) passes. The Cross Vermont Trail is 85 miles in length, spanning the state of VT east-west from Burlington to Newbury, connecting communities and providing direct, on and off-road links between village centers, state parks and recreation areas, and schools. The trail parallels the Winooski River from its mouth at Lake Champlain to the Groton State Forest in Central Vermont. Crossing the watershed divide, the trail continues along the length of the Wells River to its terminus at the Connecticut River.

The route is a mix of rail-trail, recreation paths, dirt roads and pavement. It is actually more than just one trail – it is many regional trails that are coordinated and maintained by the respective communities through which it passes, connected by one common thread – the identity of the Cross Vermont Trail. As of Spring 2009, the entire trail has been designated and marked with trail signs. Although a statewide route currently exists, the CVTA is continuing to work on developing additional off road segments.

For more information about the Central Vermont Trail Association visit www.crossvermont.org