

Basin 8: Winooski River Basin

Including the following sites:

Huntington Gorge	Huntington River, Richmond
Seven Falls of the Huntington	Huntington River, Starksboro
North Branch Falls	North Branch of Winooski, Worcester
Wrightsville Gorge	North Branch of Winooski, East Montpelier
Nelson Brook Gorge	Nelson Brook, Orange
Blake Falls	Kingsbury Branch, Woodbury
Mollys Falls	Mollys Falls Brook, Marshfield
Moretown Gorge	Mad River, Moretown
Duck Brook Cascades	Duck Brook, Bolton
Devils Pothole	Joiner Brook, Bolton
Bolton Falls	Winooski River, Duxbury
Sterling Brook Gorge	Sterling Brook, Stowe
Bingham Falls	West Branch of Waterbury River, Stowe
Middlesex Gorge	Winooski River, Middlesex and Moretown
Benjamin Falls	Pond Brook, Berlin
Northfield Falls	Cox Brook, Northfield
East Calais Cascades	Kingsbury Branch, East Calais
Marshfield Falls	Marshfield Pond Brook, Marshfield
Allen Brook Cascade	Allen Brook, Williston
Frazer Falls	unnamed stream, Williston
Moss Glen Falls II	Glen Brook, Stowe
Lime Kiln Gorge	Winooski River, Colchester and South Burlington
Williston Gorge	Winooski River, Essex and Williston
Winooski Falls	Winooski River, Burlington and Winooski City
Winooski Gorge	Winooski River, Colchester, South Burlington, and Winooski City

See the appendix for the following site:

Warren Falls	Mad River, Warren
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Basin 8 is the Winooski watershed of north central Vermont. It contains a large central valley which is heavily farmed, and a lot of mountains. It also has more waterfalls than any other basin in the state. This is partly because it is a large basin, partly because the areas where major streams leave the mountains are good places for falls and gorges, and probably partly because it is close to Montpelier and hence, best known to the state employees who compiled the list of sites for this study.

Six sites in this basin are of state significance and, of these, three are considered to be of high importance. Huntington Gorge is a unique, thin, deep gorge made from a series of interconnected potholes. Moss Glen II and Bingham Falls are major mountain falls that are popular tourist attractions.

Report 31, Huntington River Gorge, Huntington River, Richmond, Chittenden County, Vermont.

Site 593, surveyed 27 September 1983 by P.F. Zika and J.C. Jenkins.

Remarkable narrow, vertical-walled gorge carved 30-40 feet deep in blue stone.

Atlas map 37, USGS Camels Hump 15' quadrangle. Take the dirt road south from Jonesville along the river, and it is clearly visible from the road at the top of the hill. The no parking signs start a mile or so away in each direction so wait till you really see the gorge.

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Rural setting; side of a hill, wooded valley, horse farm 100 yards up hill.

River is medium-sized, typically 20-30 feet wide, alternately running in alluvial valleys and mountain ravines. It receives no official discharges but may occasionally get some domestic sewage. There is comparatively little farming along its banks. Water is clean, stones have only the normal summer algae growth.

Gorge is 30-40 feet deep and in the upper part only ten to 15 feet wide, with vertical walls formed from the enlargement of potholes. It is fluted and carved and twisty and has two falls about five feet high in the middle of it. It is also dangerous: overhanging walls, places that you think you might climb down but can't, places right on the brink where visitors stand that slope outwards and can be slippery. If you fell in and the water was not too high and you were not hurt and kept your head you could work your way safely down the gorge to the bottom or possibly to a place to climb out. Otherwise you would be drowned, and that has happened.

Gorge is about 300 feet long; at the lower end there are cliffs about 50 feet high, another falls, a lovely pool encircled by arching rocks, and a rock walled channel leading downstream. It is, of course, a classic swimming hole.

The rock is blue mica-quartz schist (Cambrian Underhill schist). It appears as if there is a band of softer schist in the middle, and that the gorge was made by the river cutting into this band.

Essentially no plants live in the gorge proper. The accompanying list of vascular plants was recorded around the edges of the gorge. The mosses were recorded on a separate visit to an area about one-half mile downstream. This area is a



HUNTINGTON RIVER GORGE - FDT HOLE

mountain ravine, popular for bathing and camping, with rock walls about 15-20 feet tall at the edge of the water. The walls are not continuous and do not constitute a real rock gorge in our sense. Some lime occurs in the schist and there is an interesting moss flora. No rarities were noted but the total of about 30 species ranks favorably with other areas of good moss diversity we have seen.

The gorge is used for swimming, picnics, parties and sightseeing and is extremely popular. (And difficult to get near owing to almost three miles of no parking signs; this in itself is a unique official commendation.) Considering the use, the gorge itself is moderately clean, there being only a few bottles and an old, unfortunate car wreck to mar the site. The lower ravine, below the gorge is used for camping and picnics and swimming, and is dirtier and could use a cleanup.

A unique place: no other gorge we have seen is so narrow and deep. P.F. Zika likes the bends in the rock. Two rocks arch over the lower pool. An important place in any case.

Does not seem threatened, but it does threaten visitors. This and Hamilton Falls are the most dangerous sites (among the ones popularly used) that we visited.

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Summary: Rural setting, fine and spectacular rocks, average botany (good mosses in ravine below), wild but not secluded, some litter, clean water, great swimming below, dangerous above, not threatened.

HIGH IMPORTANCE: Unique structure, very beautiful, popular recreation area.

RECOMMENDATIONS: Put in precautionary signs, perhaps a small fence at the dangerous overlook right where people park, install steps down the steep bank to the pool.

Vascular Plants on the Rocks at the Gorge

Agrostis sp.	Achillea millefolia
Aster lateriflorus	Juncus tenuis
Betula papyrifera	Acer rubrum
Spiraea alba	Polygonum achoreum
Leontodon officinalis	Poa compressa
Plantago major	Aquilegia canadensis
Eupatorium maculatum	Galinsoga radiata
Athyrium filix-femina	Panicum lanuginosum
Oxalis europaea	Muhlenbergia frondosa
Onoclea sensibilis	etc.

Clearly a weedy and unmemorable lot.

Surrounding woods are hemlock, white pine, and hardwoods.

Mosses and Liverworts From About One-Half Mile Downstream

Scapania nemorosa	Thuidium sp.
Two unknowns from Pottiaceae	Rhytidiadelphus triquetus
Mnium punctatum	Plagiochila asplenioides
Hypnum sp.	Mnium sp. (single-tooth)
Pogonatum alpinum	Anomodon attenuatus
P. urnigerum	Myurella sibirica
Cephalozia sp.	Campylium ? hispidulum
Lophozia sp.	Grimmia alpicola
Herzogiella striatella	Rhacomitrium aciculare
Mnium sp. (double-tooth)	Drepanocladus fluitans
? Rhynchostegium serrulatum	Philonotis marchica
Hygrohypnum eugyrium	Radula complanata
Coniocephalum conicum	Atrichum undulatum

Report 32, Seven Falls of the Huntington, Huntington River, Starksboro, Chittenden County, Vermont.

Site 41, surveyed 27 September 1983 by P.F. Zika and J.C. Jenkins.

Wooded ravine and small gorge with low falls and small pools.

Atlas map 31, USGS Mt. Ellen 7.5' quadrangle. Hard to find; take the road south from Hanksville, pass a right and then a left turn, go another 0.3 miles, park and bushwhack west.

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The site is in a wooded ravine about 200 yards from road in rural area. Some houses, trailers, meadows within one-quarter mile.

The river is a small clean upland stream, averaging about ten to 15 feet wide, in narrow mountain valley.

Beginning at a place where someone has bulldozed a road and put a culvert in the river, there is a rock cascade about 50 feet long with two three foot high waterfalls; then a pool; then a rocky cascade about 75 feet long with only a few feet of drop; then a series of about five miniature gorges averaging 20-25 feet deep, with sloping rock walls and cascades, small (ten feet across or less) pools and falls of one to three feet. There are sloping rocks, potholes, mossy walls, rippled rocks and a few small pebble bars. Everything is on a small scale, and the whole formation is probably 500-700 feet long.

The rock is the standard Green Mountain blue mica-schist, in this instance without lime.

The plants are ordinary. The forest is mostly hemlock, some hardwoods, quite dark.

The area seems to receive light local use; there are paths and some garbage and the normal peri-riparian junk that is attracted to ravines near roads. There is also some flood debris.

A pretty place, nice mosses, an attractive local stream but if you came a ways to see it you would be disappointed. If it were a little bigger, or a little more private, or had a few more plants it would start to stand out. The name is a bit grandiose, and gets your expectations up.

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Summary: Rural, wooded setting; average to nice rocks, average botany, slight seclusion, some trash, clean water, used for bathing (not swimming) and perhaps fishing; not threatened.



SEVEN FALLS OF THE HUNTINGTON

Report 33, North Branch Falls, North Branch of the Winooski River, Worcester, Washington County, Vermont.

Site AA, surveyed 7 October 1983 by J.C. Jenkins.

Single small falls and low-angle cascade; a fine swimming hole and pretty place.

Atlas map 39, USGS Montpelier 15' quadrangle. We have not got it mapped exactly but believe it to be about 1.5 miles south of the Worcester-Elmore line.

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The site is in the woods, 50 yards downslope from road, with no houses or open land near.

The river is a medium-sized, mountain stream about ten to 20 feet wide, with very clean water.

The site includes a cascade over horizontal rocks for about 75 feet followed by a falls of nine feet and a large pool about 30 by 40 feet. The falls and cascade are about 40-50 feet wide. There are a few vertical rock faces eight to 15 feet high along the east side of the cascade, but no real rock gorge.

Rock is a pretty blue quartz-schist with narrow stripes (Moretown member of the Cambrian Missisquoi quartz granulite). It is variously grooved and rippled and in the cascade there are some nice small pools and low drops.

The rock is acid and mostly confined to the stream channel so there is little habitat for mosses or vascular plants at the falls themselves. Only common species occur, and no list was made.

This is a favorite swimming hole and is said to get a lot of summer use. Nonetheless it is quite clean and not very trampled.

Visually a nice, medium-sized falls and a great swimming place in a mountain setting. Just big enough to be memorable. Not distinguished or exceptional in the state as a whole, but pretty nonetheless.

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Summary: Woodland setting, nice rocks, average or poor botany, not secluded, no trash, very clean water, good swimming, popular recreational site.



NORTH BRANCH FALLS

Report 34, Wrightsville Gorge, North Branch of the Winooski River, East Montpelier, Washington County, Vermont.

Site BB, surveyed 7 October 1983 by J.C. Jenkins.

Small degraded gorge below outlet of Wrightsville dam.

Atlas map 33, USGS Montpelier 15' quadrangle. The gorge is right below the flood control dam.

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The site is a former mill village: woods east of the gorge, cleared land west, houses, mill foundations, an old dam, machinery, rubble from the former mill that was demolished and burned. An old dam and mill debris were removed and a new hydro plant was constructed by 1985.

The river is medium-sized, about 20 feet wide in the gorge.

The gorge is about 80 feet deep with rock walls for the last five to 15 feet. The rock is blue-green schist (mapped as the Moretown member of the Ordovician Missisquoi quartz-granulite); it has a few potholes but little sculpture.

The area has been an industrial site for a long time, and is now as much rubble and masonry as it is natural gorge. All the vascular plants seen were common weedy species. There are some good moss habitats down in the gorge on wet faces just above the channel, but though they looked nice and green, there were only a few species.

The area is not used except to catch things that people throw. It is not very pretty in its present state and is not considered to be of natural importance except for reoxygenating the water that comes out of the dam.

* * *

Summary: Degraded site; impacted by hydroelectric project, industrial setting, poor rocks, poor botany, no seclusion, much post-industrial debris, clean water, not used.

NOTE: There is a penstock and hydroelectric powerhouse in this gorge constructed during 1985.

Mosses seen:

Grimmia alpicola
Bryum sp.
Ceratodon purpureus
Philonotis marchica
Mnium sp. (single-tooth)
Amblystegium riparium
species
Bracthythecium sp.
Hygrohypnum sp.



WRIGHTSVILLE GORGE

Report 35, Nelson Brook Gorge, Nelson Brook, Orange, Orange County, Vermont.

Site 305, surveyed 7 October 1983 by J.C. Jenkins.

Small granite gorge with vertical rock walls; above it a small cascade, small falls, and several pools.

Atlas map 33, USGS East Barre 15' quadrangle. Take the dirt road on the map to the brook crossing and bushwhack one-quarter mile downstream.

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In second-growth woods (hemlock and yellow birch) below the site of an old dam. Area was once farmed, now is back to woods and brush. Map shows a house or camp about 400 yards away, no others near. Older map shows three houses within one-quarter mile. Purpose of the dam is unknown. It is partially destroyed and partially standing, and appears to have been about 15 feet high.

Nelson Brook is a mountain stream, mostly under ten feet wide, with very clean water.

From the dam site down there is a cascade about 100 feet long, a waterfall about 30 feet wide and eight feet high, and then the gorge proper which is about 600 feet long, with smooth, massive, nearly vertical rock walls 30-40 feet high. It averages 30 feet wide at the bottom and about 40 feet wide at the top and so is roughly square in cross-section. The rock fractures into large square blocks and the stream bed is a jumble of these blocks. There is no carving or sculpture and no potholes.

The bedrock is granite of unknown age.

The gorge is dark and acid and apart from a few tree seedlings and occasional ferns there are almost no vascular plants within it. Mosses are abundant. About 20 species were recorded, a good number for a dark, uniform, and in theory acid habitat. (I say in theory because several of the species may indicate small amounts of lime.) One moss (Homalia trichomanoides, a large and striking species) that occurred here was recorded nowhere else in our study. We have always assumed that granite areas were poor in mosses, but to judge from this site they may be better than we had thought.

The area gets almost no use and was clean except for a single beer can.

A rugged, woodsy place, not strikingly pretty but impressive: granite country, and hence, chunkier and more abrupt than the schist country that we are used to. A nice place to be in, but not visually exceptional. I judge it a striking local

feature. Probably it is not exceptional in the state as a whole but since at present it is the only granite gorge we know we rate it as moderately important.

The natural areas study in the early seventies noted that the area was threatened with destruction within five years. We do not know what they were thinking of. It is hardly a great hydropower site, and anyway, the natural way to do a power development here would be to use the old dam site and put your turbines above the gorge.

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Summary: Woodland setting, nice rocks, exemplary botany, some wildness and seclusion, no trash, very clean water, not used. So far our only granite gorge, also good mosses.

Bryophytes From Nelson Brook Gorge

Anomodon attenuatus	Mnium (two-toothed group)
Drepanocladus uncinatus	Paraleucobryum longifolium
? Hypnum revolutum	Homalia trichomanoides
Plagiothecium laetum	Calopogeia sp.
Metzgeria conjugata	Lejunea cavifolia
Mnium (two-toothed)	Plagiochila asplenioides
Hylocomnium splendens	Herzogiella striatella
Hygrohypnum ochraceum	Hedwigia ciliata
Bracthythecium oxycladon	Bracthythecium sp.
Plagiothecium sp.	Dicranum fuscescens

Report 36, Blake Falls, Kingsbury Branch, Woodbury, Washington County, Vermont.

Site 598, surveyed 7 October 1983 by J.C. Jenkins.

Small cascade and small falls in woods.

Atlas map 39, USGS Plainfield 15' quadrangle. Near road but not obvious. Go about three-quarters of a mile south of town, just over a hill, and look on the right for a stream ravine.

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Site is in young second-growth hemlock-hardwoods, about 50 yards from the road, just out of town, with no houses nearby.

It is on a small mountain stream, averaging less than ten feet wide, with very clean water.

There are two steep cascades each about 50 feet long and each dropping ten to 20 feet. The lower cascade has one sheer falls about eight feet high.

The rock is mapped as the Barton River member of the Devonian Waits River phyllite-limestone. At the falls there were few indications of limestone and the rock appeared to be mostly a black slaty phyllite.

The site is dark and habitats for plants are limited: only normal forest species were seen. The mosses are good but not exceptional in abundance or diversity. No lists were made.

The falls probably get some use as a fishing and bathing place, but they are in fairly dense woods and have no pools and little sun. There is no garbage. There are foot trails but they do not appear much used.

The site is pretty but not striking; a nice, small falls of local importance.

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Summary: Woodland setting, average rocks, average botany, some seclusion, no trash, very clean water, little use.

Report 37, Mollys Falls, Mollys Brook, Marshfield, Washington County, Vermont.

Site 947, surveyed 7 October 1983 by J.C. Jenkins.

A very steep and high cascade, almost dry in the summer because of the diversion of water for hydropower.

Atlas map 40, USGS Plainfield 15' quadrangle. Accessible from below (go behind the powerstation) or from Route 2 which crosses Mollys Brook.

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The site is on a steep slope between Route 2 and the Winooski River. The woods are young hemlock-cedar-hardwoods that have been recently and carelessly logged leaving large openings and much junk and slash. No buildings are visible. The road is about 25 yards from the top of the falls and a large hydroelectric plant is about 100 yards from the bottom of the falls, but neither is visible from the site.

The falls are a steep continuous cascade about 150 feet long and 25 feet wide with a steepness of about 40 degrees. There are individual falls within the cascade with drops of up to 12 feet. The rock appears to be granite; according to the geological map the site is just above the contact between the granite and the Waits River limestone. Presumably the channel of the Winooski lies in the limestone and the falls developed because of the differing hardness of the two rocks. The rock at the falls is nicely worn and smoothed but hardly sculptured; there are no potholes or pools.

The stream is dammed about one-half mile above the falls and most of the water is diverted through a penstock to the hydro station. Presumably the falls get a lot of water in the spring but the dam seems to be less leaky than most and there is very little flow. In consequence the falls are dry and grassy and weedy and look in the dry season like a set of wet ledges than a stream channel. The diversity is low: as was the case in several other dried-out sites the flora is dominated by a few common herbs and mosses which are good colonists and can profit from the change. From a distance it looks like a good botanical site, but upon examination does not prove so.

The falls seem to be unused, which is reasonable since there is not much water there to use. The logging, which comes right up to their edge, has made it difficult to climb around them.

These are one of the two or three highest woodland falls in Vermont, and are probably the tallest continuous falls of any kind in the state. I am told that before the reservoir was built you could hear them a mile away. They must be spectacular in the

spring, but otherwise must be regarded as a damaged site that has lost much of its scenic and biological character.

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Summary: Altered and degraded site; impacted by hydroelectric project, woodland setting (but messy), average rocks, no water, poor botany, no trash, no use, possibly spectacular in spring. Important if restored.

Plants Seen at Mollys Falls

Mosses & Liverworts

<i>Pohlia wahlenbergi</i>	<i>Ceratodon purpureus</i>
? <i>Bryoerythrophilum recurvirostrum</i>	<i>Eurhynchium riparioides</i>
<i>Amblystegium varium</i>	<i>Grimmia alpicola</i>
<i>Brachythecium</i> ssp.	

Mosses are abundant on the rocks but the diversity is low.

Vascular Plants

<i>Aster puniceus</i>	<i>Aster acuminatus</i>
<i>Aster lateriflorus</i>	<i>Aster umbellatus</i>
<i>Solidago graminifolia</i>	<i>Solidago gigantea</i>
<i>Solidago canadensis</i>	<i>Agrostis</i> sp.
<i>Galium mollugo</i>	<i>Impatiens capensis</i>
<i>Eupatorium maculatum</i>	<i>Mentha arvensis</i>
<i>Athyrium felix-femina</i>	<i>Lysimachia ciliata</i>
<i>Thalictrum polygamum</i>	<i>Chelone glabra</i>
<i>Acer spicatum</i>	<i>Thelypteris phegopteris</i>
<i>Dryopteris marginalis</i>	<i>Diervilla lonicera</i>
<i>Glyceria striata</i>	<i>Actea</i> sp.

Report 38, Moretown Gorge, Mad River, Moretown, Washington County, Vermont.

Site FFF, surveyed 19 September 1983 by P.F. Zika.

A short rock-walled gorge on the Mad River.

Atlas map 32, Waitsfield 7.5' quadrangle. The gorge is north of the Route 100B bridge, about 0.8 miles north of the junction of Routes 100 and 100B. Access is easy from the east end of the bridge or down a steep bank for the next 100 years east along 100B.

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The gorge is near the Village Center of Moretown and is clearly visible from along the highway and from the bridge. There are no buildings overlooking the gorge. The surrounding countryside is agricultural and there is a hardwood forest at the edge of the gorge.

The stream is a moderate-sized river, probably mildly polluted, with a broad floodplain. It is turbid (perhaps due to muddying of the water upstream by drinking cows) and slippery. Mayflies, minnows and caddisflies were plentiful.

The gorge is from 15-30 feet wide and has sloping rock walls from ten to 25 feet high. There are a few riffle areas but no falls or cascades and only one good pool for swimming. The pool is near an old mill site at the foot of the gorge; some concrete foundations and piers from the mill are still attached to the walls of the gorge.

The bedrock is Ordovician schist and phyllite of the Stowe formation. It is not limy. A few of the rocks have been rounded and smoothed but there is no sculpture or rippled rock or potholes.

The plants were ordinary.

The gorge receives moderate or perhaps heavy use as a local swimming hole and party place, mostly because it is close to the center of town. The site is fairly clean but there is a little trash near the swimming hole and some junk among the stones in the river bed.

At high water the gorge is a very interesting Class IV whitewater run, and popular with advanced boaters; see our report on Vermont whitewater rivers for details.

Because of the concrete at the foot of the gorge and the bridge at the head of the gorge, and the lack of geological phenomena, this is not a beautiful site.

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Summary: Rural setting, average rocks, average botany, no privacy, some trash, murky but probably not polluted, good swimming, locally popular for parties but not for scenery.



MORETOWN GORGE

Plants of Moretown Gorge

Bryophytes

Preissia quadrata	Mnium (single-toothed)
Plagiochila asplenioides	Pohlia wahlenbergii
Grimmia alpicola	Funaria hygrometrica
Ceratodon purpureus	Mnium sp.
Thuidium sp.	Ceratodon purpureus
Bracthythecium salebrosum	Entodon seductrix
? from Pottiaceae	Hypnum lindbergii

Vascular Plants

Acer pensylvanicum	Oenothera biennis
Acer rubrum	Oenothera perennis
Acer saccharum	Onoclea sensibilis
Agrostis perennans	Osmunda cinnamomea
Alnus rugosa	Oxalis europaea
Ambrosia artemisifolia	Panicum capillare
Apocynum androsaemifolium	Panicum dichotomiflorum
Aster lateriflorus	Panicum lanuginosum
Aster puniceus	Phalaris arundinacea
Aster umbellatus	Poa compressa
Bidens vulgata	Poa sp.
Bromus ciliatus	Polygonum pensylvanicum
Calamagrostis canadensis	Polygonum punctatum
Carex spp.	Polygonum saggitatum
Carex sp. (ovales)	Polypodium virginianum
Carex torta	Populus deltoides
Cornus stolonifera	Populus tremuloides
Danthonia spicata	Prunus serotina
Diervilla lonicera	Prunus virginiana
Digitaria sanguinalis	Rubus idaeus
Dryopteris marginalis	Rubus occidentalis
Elymus riparius	Rubus odoratus
Equisetum arvense	Salix alba
Erigeron canadensis	Salix bebbiana
Erigeron strigosus	Salix discolor
Eupatorium maculatum	Saponaria officinalis
Eupatorium perfoliatum	Solidago bicolor
Fagus grandifolia	Solidago gigantea
Fragaria virginiana	Solidago graminifolia
Galeopsis tetrahit	Solidago nemoralis
Geum sp.	Spiraea tomentosa
Glyceria striata	Taraxacum officinale
Gnaphalium uliginosum	Thalictrum polygamum
Hamamelis virginiana	Tilia americana
Houstonia caerulea	Tovara virginica
Hypericum perforatum	Trifolium arvense
Impatiens sp.	Tsuga canadensis
Juncus effusus	Ulmus americana
Juncus tenuis	Vaccinium angustifolium X
Lactuca sp.	myrtilloides
Melilotus alba	Verbascum thapsus
Muhlenbergia frondosa	

Report 39, Duck Brook Falls, Duck Brook, Bolton, Chittenden County, Vermont.

Site 40, surveyed 23 June 1983 by P.F. Zika.

A short series of small cascades ending with a small waterfall.

Atlas map 37, USGS Richmond 7.5' quadrangle. Take the Long Trail north to the Duck Brook Shelter; the cascades are in a ravine east of the shelter.

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Site is a mountain ravine, 50 yards from the trail, remote from roads and houses, in hemlock-hardwoods forest.

Duck Brook is a mountain stream with cold clean water, averaging five to ten feet wide near the site.

The site has about 50 yards of low gradient cascades over boulders, then a waterfall about seven feet high.

The rock is the Cambrian Underhill schist, and occurs mostly as boulders rather than as ledges. There are a few small potholes but little sculpture.

The plants are all common woodland species.

The cascade is much used by hikers and is a favorite stopping point on the Long Trail.

The cascades and falls are small and not unusual, but the area is valuable because it is remote and natural and gets a lot of use.

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Summary: Mountain setting, average rocks, average botany, wild and moderately secluded if you pick your day, no trash, very clean water, good bathing, popular with hikers. One of the few known waterfalls not on a road, and an important recreational site.



DUCK BROOK FALLS

Plants From Duck Brook Falls

Bryophytes (in part)

Coniocephalum conicum
Mnium sp.

Dicranum sp.
Pogonatum urnigerum

Vascular plants

Acer pensylvanicum
Acer rubrum
Acer saccharum
Acer spicatum
Betula alleghaniensis
Fraxinus americana
Hamamelis virginiana
Clintonia borealis
Maianthemum canadense
Aster acuminatus
Aster divaricatus
Aster puniceus
Carex plantaginea
Carex sprenglii
Carex sp. (? blanda)
Galium lanceolatum
Plantago major

Hieracium sp.
Brachyelytrum erectum
Gymnocarpium dryopteris
Dryopteris intermedia
Dryopteris marginalis
Housetonia caerulea
Fagus grandifolia
Tsuga canadensis
Thelypteris phegopteris
Thalictrum polygamum
Solidago flexicaulis
Tiarella cordifolia
Polystichum acrostichoides
Prenanthes altissima
Polypodium virginianum
Viburnum alnifolium
Ranunculus abortivus

Report 40, Devils Pothole, Joiner Brook, Bolton, Chittenden County, Vermont.

Site 955, surveyed 19 September 1983 by P.F. Zika.

A small waterfall, several small cascades, and a large pothole.

Atlas map 37, Huntington and Richmond 7.5' quadrangles. Access is from the road running north from the center of Bolton. One tenth of a mile from town park at a small pulloff by a powerline. The brook is a short distance to the east.

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The site is in mixed conifer-hardwoods forest; a trailer park visible from the lowest cascade, powerlines over the main pothole.

Joiner Brook is a mountain stream, under ten feet wide above the site, with very clean water.

From upstream to downstream there is a 15 foot falls between two schist ledges, a small pothole, a low-angle cascade, a large (20 foot) pothole, and some more low angle cascades. The ledges are ten to 20 feet high.

The rock is the Cambrian Underhill schist; the two potholes are the only interesting features.

The plants are ordinary; there were few plants in the channel at all; most of the species listed come from the edge of the site.

The site is used locally for parties and bathing. There are well-worn trails, some paint on the rocks and a lot of trash in the woods. It is a nice bathing place but a bit shallow for good swimming.

The larger of the two potholes is quite striking, a big swirl of green rock and water.

* * *

Summary: Mountain setting (but a trailer park in view), nice rocks, poor botany, moderately wild, some trash, very clean water, fair swimming, popular for parties.



DEVILS POTHOLE

Vascular Plants of Devils Pothole

Acer pensylvanicum	Pedicularis canadensis
Acer rubrum	Pinus strobus
Achillea millefolium	Poaceae spp.
Antennaria sp.	Poa compressa
Aqueligia canadensis	Populus tremuloides
Aster cordifolius	Potentilla argentea
Aster umbellatus	Prunus virginiana
Betula papyrifera	Quercus rubra
Clematis virginiana	Rhus typhina
Daucus carota	Rubus alleghaniensis
Dennstaedtia punctilobula	Rubus idaeus
Dryopteris marginalis	Solanum dulcamara
Gentiana clausa	Solidago bicolor
Hypericum perforatum	Solidago randii
Juncus tenuis	Tovara virginica
Lactuca sp.	Tsuga canadensis
Oenothera perennis	Ulmus americana
Panicum clandestinum	Woodsia ilvensis
Panicum lanuginosum	

Report 41, Bolton Falls, Winooski River, Duxbury and Waterbury, Washington County, Vermont.

Site 334, surveyed 19 September 1983 by P.F. Zika.

A large unused power dam at the bottom of a large gorge on the Winooski River. No waterfall. The site is under redevelopment for hydroelectric power.

Atlas map 38, Waterbury 7.5' quadrangle. Cross the Winooski River in Waterbury on Winooski Street; turn right onto River Road and go south about 2.5 miles, turn right onto a jeep road which leads to the dam. It is hard to get down into the gorge; a rope helps.

* * *

The site is in an agricultural valley with a few houses nearby. There are three roads (including I-89) on the north side of the gorge and a road and a railroad on the south side, but the gorge is quite deep and not much of the traffic can be heard within it. There are hemlock-hardwoods forests on the edges of the gorge and silver-maple forests on the river banks below it.

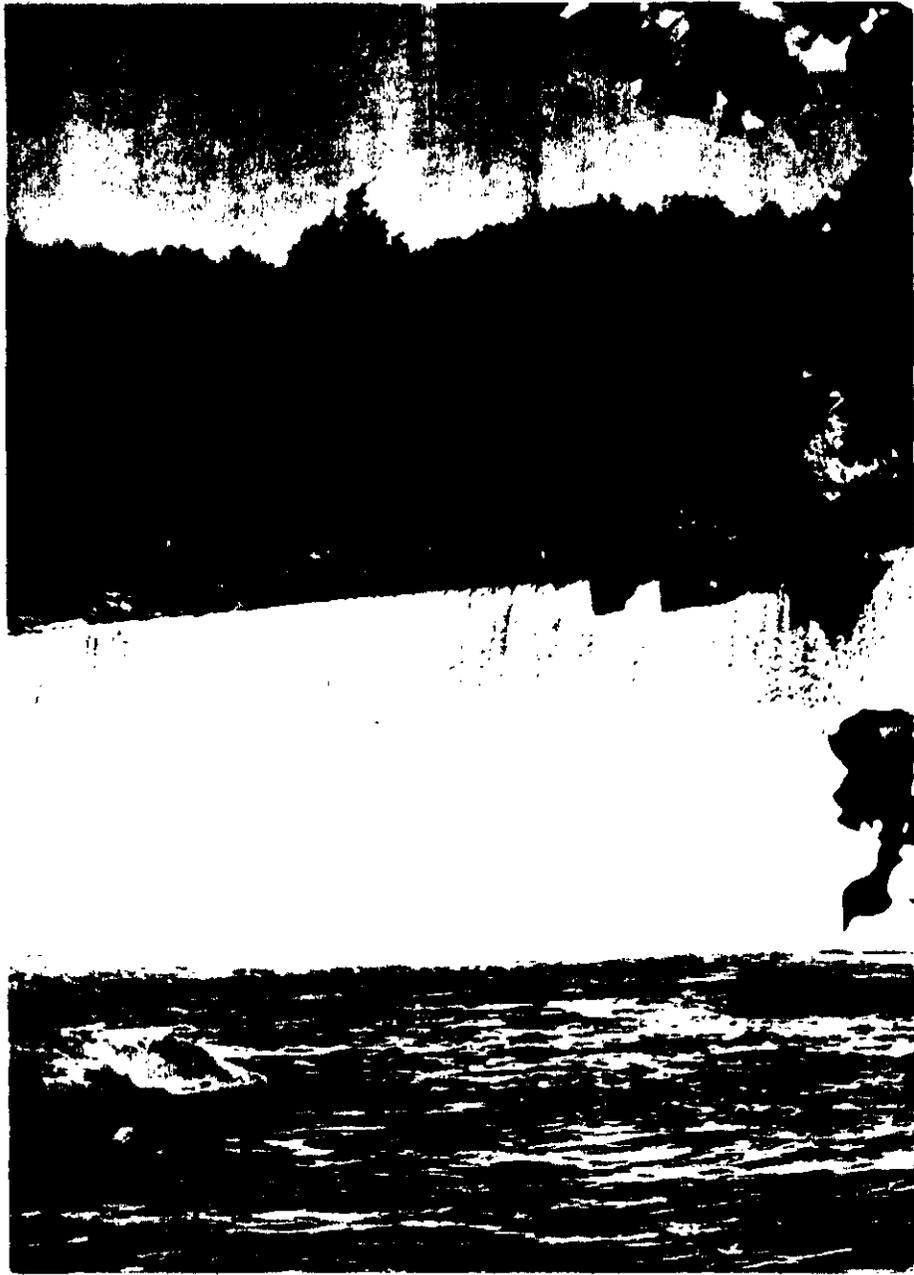
The Winooski River is a large river, typically over 100 feet wide in the vicinity of the site. It receives treated sewage at a number of points upstream and large amounts of sewage from a secondary plant in Montpelier. The water at the site is greenish and murky, and algae are common. Sall fish and aquatic insects are common, hence, the water is not deoxygenated.

The gorge is about one-quarter mile long and over 120 feet deep. It is formed by a small hill that juts out into the floodplain from the south. There are rock walls 100-120 feet high on the south side of the gorge and 45-60 feet high on the north side. The forests extend down the walls and you do not see continuous sheer faces of exposed rocks.

There is a dam about 150 feet long by 61 feet high at the lower end of the gorge where the falls used to be. At high water, the river runs over the dam. Powerlines cross the gorge upstream from the dam and there is an abandoned powerhouse south of the dam. Green Mountain Power Company has a license to redevelop the site, and the project is scheduled to be on line in 1986.

The dam or the gorge above the dam is at the contact between the Underhill and Hazens Notch formations. They are both schists of Cambrian age and look exactly alike to us. No potholes or rippled or sculptured rocks occur. The rocks were not limy.

No interesting plants were seen in the gorge. C.G. Pringle collected the rare fragrant fern (Dryopteris fragrans) here in



BOLTON FALLS

the 1870's, but the station has never been relocated. It is possible it was destroyed by the dam or the 1927 flood. The species is restricted to calcareous ledges in Vermont. Although no such rocks were seen on the survey, it is possible that some appropriate habitat remains for D. fragrans on the sheer and inaccessible walls of the gorge.

The sand bar below the dam contains a small grass and a sedge (Eragrostis hypnoides and Cyperus inflexus) that are rare away from the shore of Lake Champlain.

The site is popular for fishing and parties, and probably for swimming in the hot months. The parking area is trashy but the site is clean.

The site has to be regarded as degraded because the dam has flooded the lower portion of the gorge and discused the original waterfall. Hence, despite its size, we do not rate the gorge as an important feature. It is impressive to see a lot of water flow over the dam when the stream is up, but this is an all-too-available experience on Vermont rivers and does not deserve special note.

* * *

Summary: Degraded site, rural setting with abandoned dam and powerhouse, average rocks, average botany, former site for a rare plant, moderately secluded but not wild, some trash, ? fair swimming, local picnic spot. Would have been one of the major ?

Vascular Plants of the Sand Bar Below Bolton Falls

Acalypha rhomboidea	Hypericum boreale
Acer negundo	Impatiens sp.
Acer rubrum	Juncus bufonius
Acer saccharinum	Juncus tenuis
Agrostis sp.	Leersia oryzoides
Apios americana	Lindernia dubia
Artemisia vulgaris	Ludwigia palustris
Aster lateriflorus	Medicago lupulina
Aster puniceus	Melilotus alba
Aster simplex	Mentha arvensis
Bidens cernua	Mimulus ringens
Bidens frondosa	Myosotis scorpioides
Carex torta ?	Oxalis europaea
Carex spp.	Panicum capillare
Cornus stolonifera	Panicum clandestinum
Cyperus inflexus	Phalaris arundinacea
Cyperus strigosus	Plantago major
Digitaria sanguinalis	Poa palustris
Echinochloa crus-galli	Polygonum aviculare
Echinocystus lobata	Polygonum pensylvanicum
Eleocharis sp.	Salix fragilis ?
Eleocharis tenuis	Salix nigra
Equisetum arvense	Salix rigida
Eragrostis hypnoides	Saponaria officinalis
Eragrostis pectinaceus	Scirpus atrovirens
Erigeron strigosus	Scirpus cyperinus
Erigeron sp.	Solidago graminifolia
Eupatorium maculatum	Trifolium repens
Galium mollugo	Vernbena hastata
Glyceria grandis	Vitis riparia
Gnaphalium uliginosum	Xanthium strumarium

Vascular Plants of Bolton Falls, Above the Dam

Dryopteris marginalis	Cystopteris fragilis
Dryopteris fragrans (formerly)	Aegepodium podagraria
Acer negundo	Ulmus americana
Acer rubrum	Vaccinium angustifolium
Betula papyrifera	Parthenocissus sp.
Cornus stolonifera	Populus tremuloides
Alnus rugosa	Salix rigida
Apios americana	Xanthium strumarium
Aster cordifolius	Oxalis europaea
Aster lateriflorus	Toxicodendron radicans
Aster umbellatus	Solidago gigantea
Apocynum androsaemifolium	Solidago juncea
Agrostis sp.	Panicum lanuginosum
Achillea millefolium	Melilotus alba
Aster puniceus	Poa compressa
Lindernia dubia	Thalictrum polygamum
Galium mollugo	Tsuga canadensis
Galium sp.	Spiraea alba
Juncus tenuis	Thelypteris phegopteris
Eigeron sp.	Onoclea sensibilis
Artemesia vulgaris	Muhlenbergia frondosa

Report 42, Sterling Brook Gorge, Sterling Brook, Stowe, Lamoille County, Vermont.

Site 959, surveyed 17 October 1983 by P.F. Zika.

A series of small cascades and falls in a rocky ravine.

Atlas map 38, Hyde Park 7.5' quadrangle. Follow the road that parallels Sterling Brook up past a red covered bridge and past a small cemetery on the right (north). The road becomes quite rough. Descend a slope and cross a stream on a plank bridge. The next turn to the left (south) is a jeep road leading to a logging clearing and hunting camp. The west edge of the clearing is the upper edge of the ravine with the cascades.

* * *

The site is in mountain woods with no houses or open land near. There is a hunting camp and a number of logging roads nearby.

Sterling Brook is a mountain stream five to ten feet wide, very clean and clear. It is well oxygenated.

The ravine is about 400 feet long. Several sections have short rock walls ten to 30 feet high, but the walls are not continuous. The stream channel contains a series of cascades, falls, and pools, the drops typically under six feet. The largest pool is 15 by 25 feet and deep enough for swimming.

The rock is schist of the Underhill or Hazens Notch formation, and is of Cambrian age. It is bedded at 45 or 50 degrees to the horizontal, and the cascades parallel the bedding. There are traces of lime at the top of one slope above the ravine. Five or six partially formed potholes are present in the channel. In a few places the rocks are sculptured.

There are comparatively few vascular plants in the gorge itself, owing to deep shade. An odd goldenrod, probably a hybrid, was collected. It does not correspond to any of the normal Vermont species and we do not know what it might be.

Mosses were common but were not studied.

The site receives moderate local use, probably mostly from local people. It is remote and the roads are poor. The stream may be too small for good fishing. Except for some junk left by loggers the site is clean.

A pretty series of small cascades and falls, but marred by the logging clearings.



STERLING BROOK GORGE

There are expensive subdivisions, mostly vacation homes, on the lower parts of Sterling Brook. If these continue to expand upstream as they have been doing the gorge will eventually be threatened.

* * *

Summary: Mountain setting, average rocks, average botany, moderately wild and secluded, clean site, very clean water, fair swimming, locally popular for horseback riding, picnics, scenery. We have only a few secluded chains of pools and falls in the state.

Vascular Plants of Sterling Brook Gorge

Tsuga canadensis	Abies balsamea
Betula alleghaniensis	Solidago rugosa
Betula papyrifera	Solidago graminifolia
Picea rubens	Solidago ???
Oxalis montana	Aster acuminatus
Dryopteris intermedia	Aster divaricatus
Dryopteris campyloptera	Aster puniceus
Acer spicatum	Fagus grandifolius
Acer saccharum	Polystichum acrosticoides
Acer rubrum	Fraxinus americana
Acer pensylvanicum	Coptis trifolia
Rubus allegheniensis	Viburnum alnifolium
Dennstaedtia punctilobula	

Report 43, Bingham Falls, West Branch of the Waterbury River, Stowe, Lamoille County, Vermont.

Site 257, surveyed 17 October 1983 (and numerous visits previous years) by P. F. Zika.

A small gorge with a major waterfall and large cascade at the lower end.

Atlas map 38, Mount Mansfield 7.5' quadrangle. Drive up the Mountain Road (Route 108) from the center of Stowe. Pass the Toll Road and go 1/2 mile; there is a parking lot to the left (west) and a trail leading to the gorge and falls on the right (east).

* * *

The site is in the woods about one-quarter mile from the paved road. There is a logging road next to the gorge, an impoundment to store water for snowmaking upstream and recent logging and development downstream.

The stream is a mountain brook, roughly ten feet wide, with very clean water. It occasionally receives heavy sediment loads from trail construction at the ski areas.

The gorge is about three feet deep at the upper end and 30 feet deep at the lower end with a maximum width of 20 feet. It has potholes and cascades and handsome sculptured rocks. At the bottom there is a steep cascade about 20 feet high, and then a sheer falls of the same height, with a 30 foot pool at the base of the falls.

The rock is Hazens Notch schist and gneiss, of Cambrian age. It is not limy. It is beautifully sculpted by the river in the upper reaches of the gorge. There are a number of potholes greater than two feet in diameter, some in the current channel and some above it.

The plants all seem to be common species of moist woods. Osmorhiza obtusa, a rare northern relative of the common sweet cicily, was collected here once about 40 years ago by A.S. Pease. We have made several searches for it over the last three years but have never seen it. It is possible that it was extirpated by logging in the area or by the heavy trampling of recreational visitors.

Mosses are common; no collections were made.

The site is very heavily visited by locals and tourists. The lower pool is a very pretty place to swim and there are ledges to dive from. There is always some litter along the trails.



BINGHAM FALLS

A very attractive small gorge and falls.

According to the map the site is outside the boundaries of the state forest. If it is on private land, it could conceivably be threatened by expansion of the housing development downstream.

* * *

Summary: Woodland setting, spectacular rocks, average botany, formerly a site for a very rare plant, moderately wild but hardly secluded, some trash, very clean water, good swimming, popular recreational site.

HIGH IMPORTANCE: Falls and cascades with a total height over 20 feet are rare in Vermont; this is important because it is moderately natural and also because it is a popular recreational site.

Vascular Plants of Bingham Falls

Tsuga canadensis	Dennstaedtia punctilobula
Picea rubens	Polypodium virginianum
Betula alleghaniensis	Oxalis montana
Acer saccharum	Viburnum alnifolium
Acer spicatum	Impatiens sp.
Acer pensylvanicum	Clintonia borealis
Fagus grandifolia	Rubus allegheniensis
Aster acuminatus	Coptis trifolia
Dryopteris intermedia	Osmorhiza obtusa (formerly)
Thelypteris phegopteris	

Report 44, Middlesex Gorge, Winooski River, Middlesex and Moretown, Washington County, Vermont.

Site 762, surveyed 19 September 1983 by P.F. Zika.

A large gorge, partially flooded by a dam near the lower end.

Atlas map 32, Middlesex 7.5' quadrangle. The site is visible downstream (west) of the Route 100B bridge over the Winooski River in Middlesex. From 100B there is easy access to the portion of the gorge below the dam, 250 yards west of the bridge.

* * *

The site is near the edge of the Village of Middlesex; from the gorge you see a dam, a bridge, roads, powerlines, a generating station and houses. Parts of the gorge are wooded with second-growth hemlock-hardwoods forest.

The Winooski averages over 100 feet wide above the gorge and is a lowland river running in a broad alluvial plain. It narrows to 15-30 feet wide in the gorge.

The water is mildly polluted; it is Class C for two miles below Montpelier but classified as B in Middlesex. There is moderate algae growth and the river is murky at low flows.

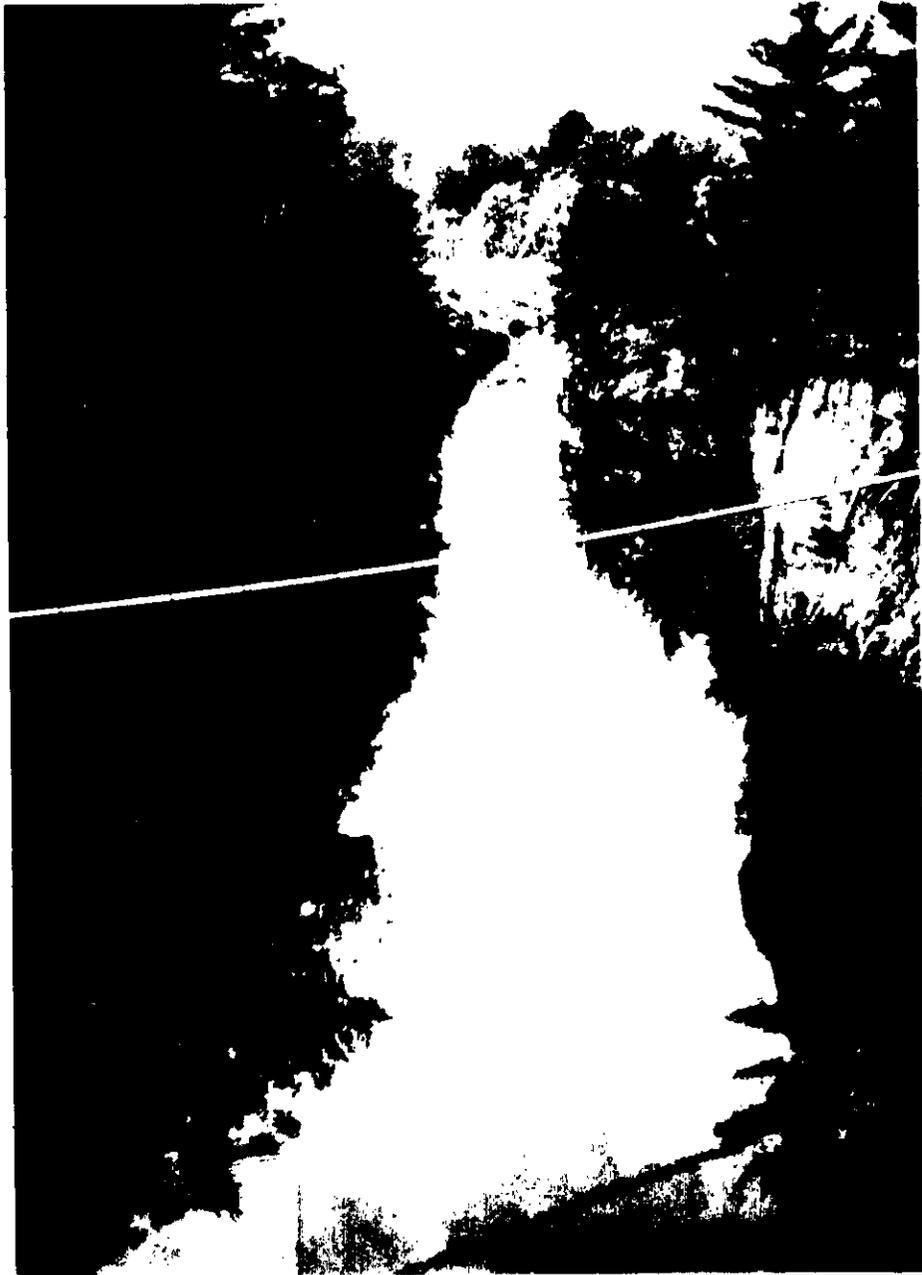
The gorge is about 1,000 feet long with high-angle rock walls from 20-60 feet high. There are no falls or cascades. The upper 2/3 of the gorge is flooded by the dam.

The rocks are a vertically bedded schist from the Moretown member of the Missisquoi formation, and are of Ordovician age. There are nice smooth rocks near the base of the dam, two potholes over six feet in diameter, and a number of small potholes under one foot wide. Otherwise the rock is not particularly sculptured or noteworthy. Some lime is present.

Most of the vascular plants are common weedy species. Three scarce species occurred in small numbers on damp ledges: Erigeron hyssopifolius, a scarce species of alpine areas and river gorges, currently known from six sites in Vermont; Trisetum spicatum, scarce and mostly restricted to the Champlain Valley; and Solidago randii, a scarce species restricted to ledges. Another scarce species, Aster tradescanti, grew in abundance on the dry south-facing ledges.

Because most of the rocks are dry there were comparatively few mosses or liverworts; no rare species were seen.

The lower end of the gorge is occasionally used for fishing or perhaps swimming. There is a little bit of trash here and the usual flotsam. The rest of the gorge does not appear to be used.



MIDDLESEX GORGE

The dam and related structures are obtrusive. It is noteworthy for the small and previously undiscovered colony of Erigeron hyssopifolius, and for the other three scarce plants. We rate it a degraded site, with one rare plant and three scarce plants.

* * *

Summary: Industrial setting, impacted by hydroelectric project, nice rocks, four noteworthy vascular plants, botany otherwise average, no seclusion or wildness, some trash, mildly polluted water, fair swimming.

We recommend that the state attempt to assure a minimum flow between the dam and the powerstation to protect the plants. Perhaps a portion of the recently negotiated minimum project release can be used.

Plants of Middlesex Gorge

Bryophytes

Amblystegium serpens	Brachythecium plumosum
Fissadens cristatus	Coniocephalum conicum
? from Pottiaceae	Plagiochila asplenioides
Tortell tortuosa	Pleurozium schreberi
Pogonatum urnigerum	Amblystegium tenax
Grimmia alpicola	Anomodon attenuatus
Amblystegium riparium	

Vascular plants

Arctium sp.	Juncus dudleyi
Acer rubrum	Lactuca sp.
Achillea millefolium	Linaria vulgaris
Agrostis hyemalis	Malva sp.
Agrostis sp.	Medicago sativa
Antennaria sp.	Mimulus ringens
Apios americana	Muhlenbergia mexicana
Aquilegia canadensis	Oenothera perennis
Artemisia vulgaris	Onoclea sensibilis
Asclepias syriaca	Panicum capillare
Aster cordifolius	Pilea pumila
Aster lateriflorus	Pinus strobus
Aster tradescanti	Plantago rugelii
Aster umbellatus	Poa compressa
Athyrium filix-femina	Poa pratensis
Betula papyrifera	Polygonum aviculare
Bidens cernua	Polygonum pennsylvanicum
Bidens frondosa	Polygonum punctatum
Bromus inermis	Populus deltoides
Calamagrostis canadensis	Populus tremuloides
Campanula rotundifolia	Prenanthes altissima
Carex sp.	Prunella vulgaris
Cerastium vulgatum	Prunus serotina
Cirsium vulgare	Quercus rubra
Cornus stolonifera	Rhus typhina
Cyperus strigosus	Solidago randii
Cystopteris bulbifera	Rubus idaeus
Daucus carota	Rubus occidentalis
Dennstaedtia punctilobula	Rubus odoratus
Dryopteris intermedia	Rudbeckia serotina
Dryopteris marginalis	Salix sp.
Echinochloa crus-galli	Setaria glauca
Epilobium glandulosum	Solanum dulcamara
Eragrostis pectinacea	Solidago bicolor
Erigeron annuus	Solidago canadensis
Erigeron canadensis	Solidago graminifolia
Erigeron hyssopifolius	Solidago rugosa
Erigeron strigosus	Taraxacum officinale
Eupatorium maculatum	Tragopogon pratensis
Fragaria virginiana	Trisetum spicatum
Galium aparine	Tsuga canadensis
Gnaphalium uliginosum	Ulmus americana
Hieraceum aurantiacum	Vaccinium angustifolium
Hieraceum scabrum	Vicia cracca
Houstonia caerulea	Viola sp.
Hypericum perforatum	Xanthium strumarium

Report 45, Benjamin Falls, Pond Brook, Berlin, Washington County, Vermont.

Site 303, surveyed 20 September 1983 by P.F. Zika and 17 June 1986 by J.C. Jenkins.

Large secluded ravine with cascades and falls.

Atlas map 33, Barre West 7.5' quadrangle. Can be reached from behind Crossway Motors which is at the intersection of the Barre-Montpelier Road and the interstate access road. It can also be reached from above at the old city water supply pond off Berlin Street.

* * *

Benjamin Falls is a long cascade in the Town of Berlin, about 1/4 mile south of the Montpelier City boundary. The lower part of the cascade was surveyed in 1983 by Peter Zika and included in Jenkins & Zika, Vermont Waterfalls and Gorges. At that time we were not aware of the extent of the site, and our evaluation was based on a partial survey. In 1986 the Vermont Agency of Environmental conservation asked Jenkins to resurvey the site. The survey was done on June 17th, during a period of high water following a heavy thunderstorm.

Benjamin Falls is located on Berlin Pond Brook. The site is in a wooded ravine just to the east of Route 302 and just north of the access road connecting Routes 302 and 62. Hence, the site is very close to the intensively developed Barre-Montpelier corridor.

Berlin Pond Brook is a small stream, averaging some 15-30 feet wide here. The water, which was seen immediately after a severe thunderstorm, was silty but otherwise appeared and smelled clean. Pond Brook is the outlet stream from Berlin Pond, the City water supply. It is a small, clear steep stream.

The cascades begin just below a small dam at an elevation of 860 feet and descend some 320 feet over a distance of 2,400 feet until the stream enters the floodplain of the Stevens Branch.

The stream channel runs almost continually in bedrock. It consists of a number of steep cascades (the largest about 50 feet high) and small falls separated by medium steep cascades and a few more gentle segments of typical woodland stream. The cascades are closely spaced: in the whole climb from the road to the reservoir there is never more than a 150 foot interval between successive cascades, and in many places the cascades merge with one another, making a continuous staircase of falling water.

The bedrock at the site is mapped as the Barton member of the Devonian Waits River formation, a mixture of limestone and



BENJAMIN FALLS

phyllite. Field examination show two distinct lithologies, a black phyllitic schist near the bottom of the site and a massive grey mica schist, apparently harder and tending to break into blocks rather than thin sheets, near the top. Both are bedded vertically. Cascades occur on both, but the steepest cascades and most striking ledges are on the massive schist.

There are no major rock walls paralleling the stream (though there are several ledges perpendicular to it, formed by the same outcrops that make the largest cascades); hence, the site is not a gorge. The ravine walls are steep in places, and there are several nice lookouts from which it is possible to get fine views of the largest cascades.

The cascades lie in a ravine between two hills. The lower parts of these hills were farmed, and there are open fields within a short distance of the stream, separated from it by a thin strip of what appear to be second-growth woods. The upper parts of the hills are wooded, and the stream is surrounded here by more extensive woodlands, dominated by hemlock and yellow birch. These are either primary woods or much older second-growth.

Much of the upper woods have been recently and rather crudely logged; as a result they are patchy and have a moderate amount of slash and logging debris, and thick, crowded stands of young or recently released hemlocks.

A botanical survey found no rare species. The plants are typical of acid woodlands. (A few lime-dependent sedges were seen around a spring in a pasture south of the site, and Charles Johnson reported walking fern on one of the upper cliffs, which also has small amounts of maidenhair and bulblet fern; otherwise lime-dependent species were absent.) A total of approximately 90 vascular plants were seen in the woods and along the stream banks: in comparison to other woods at this elevation this is a moderately diverse but not exceptional flora, better than that of acid mountain woods or dense conifer stands, but inferior to that found in the best limy hardwood stands. (Hemlocks cast deep shade and produce an acid, poorly decomposed surface soil; even if the bedrock were a pure limestone the dominance of hemlocks in the ravine would keep the diversity fairly low here.)

There are no wet cliffs in the spray zone of the stream, and hence, no exceptional habitats for mosses and liverworts. No detailed inventory of mosses was made, and only a few common species were noted in the field.

The cascade currently receives moderate use. There are some trails along the south side and a small snowmobile bridge in the middle. There are a number of nice places to sit and watch the water, but, so far as could be seen at high water, no good swimming.

The site is enclosed in by the ravine and woods, and feels quite private, in fact amazingly so considering how close it is to the roads and to the city. It is a very natural site in the sense that you cannot see any buildings or roads or wires from it. (The dam at the top is perhaps 15 feet high by 25 feet wide, and sits above the top cascade where you can't see it until you are within 100 feet of it.) It is not, however, really secluded or wild: you can see fields from the lower portions of the cascade, and, as mentioned above, the lower woods are second growth and the upper woods have been extensively cut.

In summary, what we have is a very striking water feature - a long, nearly continuous series of cascades, coming down a steep ravine, remarkable for their length and power - with nice but unexceptional surrounding woods and biology. Old mill foundations testify to the fact that there was some use of the cascades for power. The site is potentially of great interest as a future city or state park.

The height, continuity, and length of the cascades are, so far as we know, unique in the state; hence, as a geological feature the area has state significance and is rated as highly significant.

The biology and surroundings are average, with the note that the beauty of the woods will increase as they recover from logging. The cascades themselves are very impressive but lack the visual interest of places with large boulders or rock-walled gorges, and in the author's opinion cannot compare in this respect with our most beautiful gorges or cascade-and-pool chains.

The site is potentially very important as a recreation area because it is close to two urban areas, and would make a fine and very unusual public park. The woods could be considerably improved by good forestry and with the addition of trails (or upgrading of existing trails) it would be a more beautiful place to walk and sit. So far as we know there is no other large cascade near any urban area in Vermont that is still wooded and private, and no urban park in the state that has spectacular water features. All of these considerations give it high importance as a potential park, with the note that if developed as a city park it would be unique in that a geological feature normally thought of as belonging to the high mountains would be accessible, on foot, within an urban area, and in its natural form and conditions. If we may venture an opinion, it is hard to think of a more appropriate symbol for the capital of a mountain state.

* * *

Summary: Exceptional geological feature, perhaps unique in the state; average woods, biology and surroundings; water quality and site condition good; noteworthy privacy, but not really wild or secluded; no fishing and probably no swimming; exceptional potential as a city park.

Rated HIGHLY IMPORTANT (of statewide importance) as a large, spectacular cascade, and highly important as a potential urban park that, if created, would be unique in the state.

Vascular Plants Seen in the Woods and Along the Stream
at Benjamin Falls

Acer saccharum	Gymnocarpium dryopteris
Acer spicatum	Hammamelis virginiana
Actea rubra	Hieracium florentinum
Adiantum pedatum	Impatiens sp.
Alnus rugosa	Juncus effusus
Aralia nudicaulis	Laportea canadense
Arismaea triphyllum	Lonicera canadensis
Aster lateriflorus	Luzula acuminata
Aster puniceus	Lycopodium lucidulum
Aster umbellatus	Lycopodium obscurum
Athyrium felix-femina	Lysimachia ciliata
Betula alleghaniensis	Lysimachia nummularia
Brachyelytrum erectum	Maianthemum canadense
Carex arctata	Mentha sp.
Carex blanda	Myosotis scorpioides
Carex crinita	Onclea sensibilis
Carex debilis	Ostrya virginiana
Carex from ovales	Oxalis montana
Carex from ovales #2	Parthenocissus inserta
Carex gracillima	Phegopteris phegopteris
Carex granularis	Poa alsodes
Carex lurida	Polulus grandidentata
Carex novae-angliae	Polygonatum pubescens
Carex pedunculata	Polystichum acrostichoides
Carex stipata	Populus tremuloides
Carex swanii	Potentilla simplex
Circaea alpina	Prenanthes sp.
Clematis virginica	Prunus virginiana
Cornus alternifolia	Ranunculus acris
Cornus racemosa	Ranunculus recurvatus
Crataegus ? monogyna	Ribes rubrum
Cystopteris bulbifera	Rubis hispidus
Dryopteris intermedia	Rubus idaeus
Dryopteris marginalis	Rubus occidentalis
Dryopteris spinulosa	Rubus pensylvanicus
Epipactis helleborine	Solanum dulcamara
Erigeron philadelphicus	Solidago rugosa
Erigeron strigosus	Thalictrum polygamum
Fragaria virginica	Thelypteris nova-boracense
Fraxinus americana	Thuja occidentalis
Galium triflorum	Tsuga canadense
Geranium robertianum	Ulmus americana
Geum sp. (probably canadense)	Veratrum viride
Glyceria melicaria	Veronica officinalis
Glyceria striata	

Report 46, Northfield Falls, Cox Brook, Northfield, Washington County, Vermont.

Site EEE, surveyed 4 October 1983 by P.F. Zika.

A small cascade below a dam.

Atlas map 32, Barre 15' quadrangle. The cascade is along the road that parallels Cox Brook just to the northwest of the Village of Northfield Falls. It is about 0.1 mile beyond the second covered bridge as you leave town.

* * *

The site is in the open at the edge of the Village. There is a small dam above the cascade, some fill from the roads, several culverts, some trash and so on.

Cox Brook is a small lowland alluvial stream about ten to 15 feet wide, with fertile or mildly polluted water. Minnows and aquatic insects are plentiful.

The site consists of a series of short cascades and pools with a total drop of about 15 feet.

The most attractive feature of the site was the bedrock, which was well exposed on the south shore of the stream. There are ledges about 20 feet wide which have been rounded by the water and have a few potholes.

The rock is mapped as part of the Ordovician Missisquoi formation. The site is possibly at the contact between two different rocks from this formation, the Harlow Bridge quartzite member and the Cram Hill member which can be either phyllites or volcanic rocks. The rocks in the cascade appeared to be schist, with some striking yellow coloration. There was also a more massive green stone in the outcrop. The presence of a tiny colony of Geranium robertianum indicated there was some lime in the bedrock, or perhaps that lime was leaching from the road fill.

No unusual vascular plants were noted. Bryophytes were not common or diverse.

The falls receive very little use. There are no deep swimming holes and the site is not particularly attractive for other recreational activities. There is some junk above and below the dam, and a few beer cans. At best a gathering place when you can't get to anywhere else.

* * *

Summary: Rural setting, nice rocks, average botany, no seclusion, some trash, mild water pollution; no swimming.

Vascular Plants of Cox Brook Cascades

Pinus strobus
Betula alleghaniensis
Tsuga canadensis
Acer rubrum
Rubus idaeus
Galium mollugo
Ulmus americana
Amelanchier sp.
Geranium robertianum
Aster puniceus
Aster umbellatus
Oenothera biennis
Achillea millefolium

Parthenocissus sp.
Poa compressa
Poa pratensis
Taraxacum officinale
Salix rigida
Rubus odoratus
Impatiens sp.
Carex torta
Solidago canadensis
Epilobium glandulosum
Gnaphalium supinum
Eleocharis obtusa



NORTHFIELD FALLS

Report 47, East Calais Cascades, Kingsbury Branch, Calais, Washington County, Vermont.

Site HHH, surveyed 4 October 1983 by P.F. Zika.

Some low-angle cascades.

Atlas map 39, Plainfield 15' quadrangle. Vermont Route 14 goes through the Village of East Calais. Just north of the gas station turn west over Kingsbury Branch. The cascade is below the dam.

* * *

The site is second-growth pine-hardwoods forest at the edge of the Village. The cascades are at the bottom of a wooded ravine. The bridge and road are visible; there are powerlines and houses nearby and junk from the Village and from an old mill site in the ravine.

The stream is a small, lowland, alluvial stream averaging ten to 15 feet wide. It has a lot of algae and is probably mildly polluted.

The cascades are about 250 feet long and consist of a series of chutes, flat sloping ledges and small pools with a total drop of about 50 feet. There are no deep pools for swimming and no sculpture or potholes.

The bedrock is a weakly-layered phyllite mapped as the Barton River member of the Devonian Waits River formation. There were pockets of lime on the west shore of the cascades.

The plants were uninteresting.

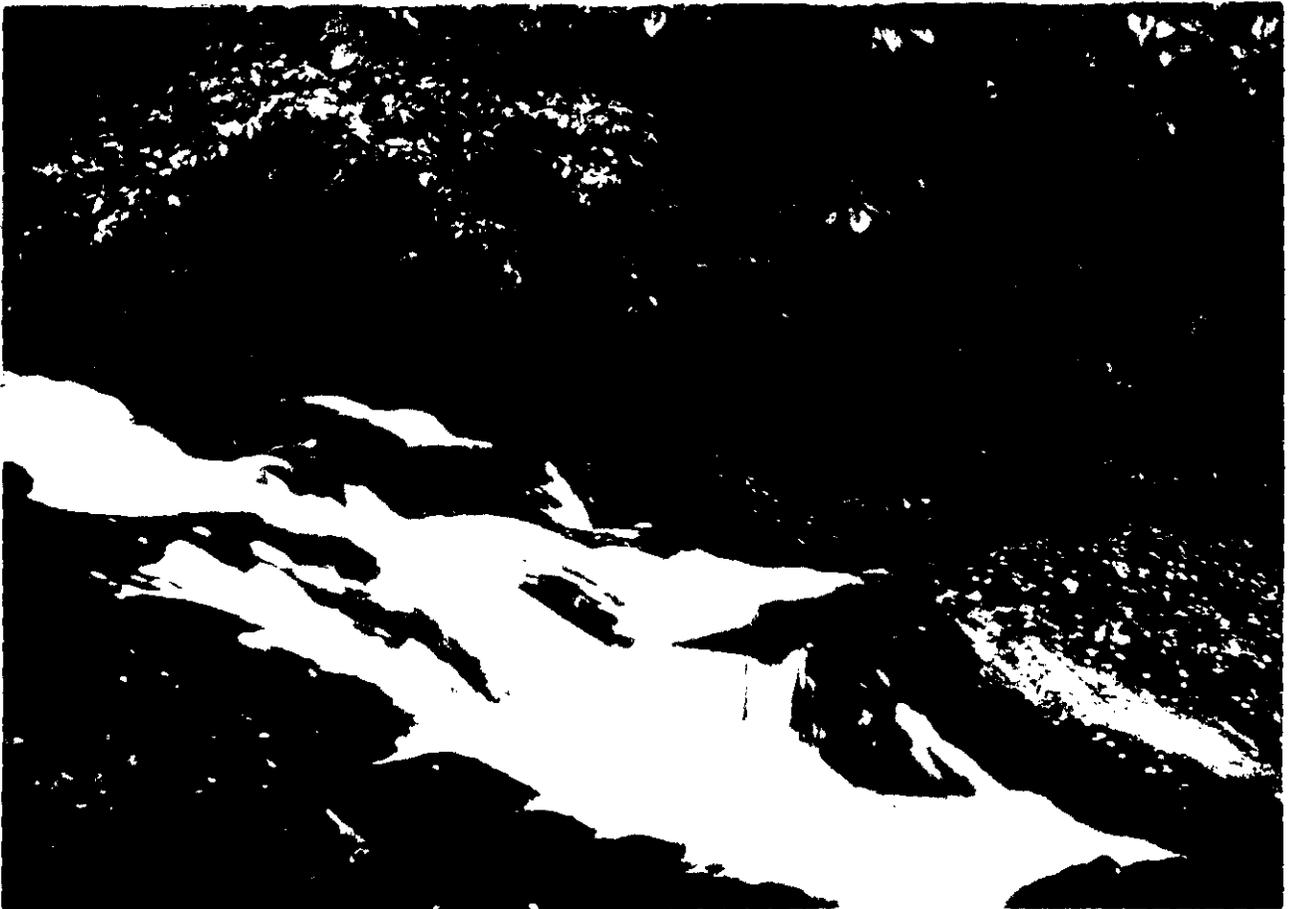
The falls were once a mill site. They probably never were particularly scenic and now suffer from junk and algae.

* * *

Summary: Somewhat degraded site at edge of a village; average rocks, average botany, not secluded or wild, some trash and junk, mild water pollution, no swimming.

Vascular Plants of East Calais Cascades

Populus tremuloides	Cornus amomum
Betula papyrifera	Carex pedunculata
Betula alleghaniensis	Dryopteris marginalis
Acer rubrum	Asarum canadense
Thuja occidentalis (one)	Solidago flexicaulis
Ulmus americana	Elymus riparius
Pinus strobus	Taraxacum officinale
Iris versicolor	Vitis riparia
Mentha arvensis	Solanum dulcamara
Thalictrum polygamum	Lysimachia nummularia
Poaceae spp.	Eupatorium maculatum
Thelypteris phegopteris	Lonicera X bella
Aster puniceus	



EAST CALAIS CASCADES

Report 48, Marshfield Falls, Marshfield Brook, Marshfield, Washington County, Vermont.

Site KK, surveyed 11 October 1983 by P.F. Zika.

A long low-angle cascade between two bridges.

Atlas map 40, Plainfield 15' quadrangle. From the center of Marshfield, drive south on the road to Bailey and Marshfield Ponds, pass a sewage treatment plant on the right, come to a fork. The lower fork leads to the bottom of the cascade. The upper fork crosses the lower third of the cascade.

* * *

The site is rural, partly open and partly wooded. There are two bridges over the cascades, a stone wall (perhaps from a mill) above them and some houses and a channelized section of the stream below them. The woods are second-growth hemlock-hardwoods.

The stream is a small mountain brook four to six feet wide with clean water but some foam and algae. It may receive nutrients from summer camps upstream. Aquatic insects are plentiful and the water is well oxygenated.

The cascade is a sloping granite face 100 yards long and 20-30 feet wide over which the water runs in a straight line. The vertical drop between the bridges is about 50 feet. The granite weathers and separates into thin sheets parallel to the slope, but does not form potholes or ripples or sculptured surfaces. This gives the cascade a uniform, somewhat dull, New Hampshireish look.

The rock is an undifferentiated granite of approximately Devonian age. It is only exposed in the bed of the stream. There is no lime at the site.

The vascular flora was slightly more diverse than most sites without lime. One species of interest was seen, the cutleaved susan, Rudbeckia triloba, a scarce species that has come into Vermont from the west and is probably near its local northern limit in Marshfield.

Mosses were common on the wet rocks, and moderately diverse. No collections were made.

The cascade is a well known local scenic attraction, easily reached by road. There is no swimming but we assume it is visited by sightseers. Some junk and trash were seen.

It is a pretty place: a continuous sheet of water over smooth rocks, probably quite wild in the spring.



MARSHFIELD FALLS

There had been a proposed hydro project at the site. A dam would have been constructed at the top of the cascade and a powerhouse placed 150 feet downstream from the base of the cascade. A penstock would have diverted all the water from the cascades, except for a minimum summer flow of three cfs and a minimum winter flow of two cfs. The developers for the project have since abandoned their proposal, however.

* * *

Summary: Rural setting with roads and bridge, average rocks, average botany, no seclusion or wildness, some trash, clean water, no swimming, popular for scenery. Threatened with a hydro project.

Vascular Plants Between the Bridges at Marshfield Falls

Abies balsamea	Mentha arvensis
Betula alleghaniensis	Corylus cornuta
Betula papyrifera	Chelone glabra
Tsuga canadensis	Cornus stolonifera
Acer saccharum	Cornus alternifolia
Acer rubrum	Alnus rugosa
Acer negundo	Myosotis scorpioides
Populus tremuloides	Clematis virginiana
Juglans cinerea	Galium triflorum
Fraxinus nigra	Galium sp.
Fraxinus americana	Athyrium filix-femina
Rubus idaeus	Thelypteris phegopteris
Rubus odoratus	Rudbeckia triloba
Rubus occidentalis	Glyceria striata
Aster puniceus	Prunus virginiana
Aster umbellatus	Muhlenbergia sp.
Aster lateriflorus	Thelypteris palustris
Salix bebbiana	Arctium sp.
Solidago gigantea	Dryopteris intermedia
Solidago rugosa	Veronica officinalis
Solidago flexuosa	Carex pedunculata
Thalictrum polygamum	Aster cordifolius

Report 49, Allen Brook Cascade, Allen Brook, Williston,
Chittenden County, Vermont.

No site number; surveyed 20 September 1983 by P.F. Zika.

A small cascade.

Atlas map 36, Essex Junction 7.5' quadrangle. The site is 50 yards downstream from the Industrial Drive bridge over Allen Brook.

* * *

The site is industrial, surrounded by houses and commercial buildings, with construction currently going on 50 yards away. The woods on either side of the stream are young second-growth hardwoods.

Allen Brook is a small stream averaging three to five feet wide, mildly polluted, with a lot of algae in the channel.

The cascades are about 200 feet long and drop a total of 20 feet. Small potholes under one foot across are common. There are no falls or pools.

The rock is dolomite, from any or all of three formations that seem to come together here.

The vascular plants were typical of a small, partly shaded limestone ledge. No rarities were present. A garden Sedum has naturalized itself and carpeted some of the damp rock by the cascade.

No rare mosses were collected.

There is a trail leading to the cascade but use of the area is probably light. It is not an attractive site, litter abounds, and there is no swimming.

* * *

Summary: Industrial setting, indifferent rocks, poor botany, without privacy or wildness, some trash, mildly polluted water, no swimming, not much use.



ALLEN BROOK CASCADE

Plants of Allen Brook Cascade

Bryophytes

Brachythecium ? oxycladon	Entodon seductrix
Hypnum lindbergii	Amblystegium tenax
Cephalozia sp.	Amblystegium sp.
Thuidium sp.	

Vascular plants

Acer negundo	Heracleum maximum
Amphicarpa bracteata	Lysimachia nummularia
Anemone virginiana	Muhlenbergia frondosa
Aquilegia canadensis	Oxalis europaea
Aster novae-angliae	Parthenocissus quinquefolia
Aster simplex	Phalaris arundinacea
Berberis vulgaris	Polygonum lapathifolium
Bidens cernua	Polygonum sagittatum
Bidens frondosa	Rumex crispus
Boehmeria cylindrica	Salix discolor
Dryopteris marginalis	Salix rigida
Echinocloa crus-galli	Sedum sp.
Elymus riparius	Taraxacum officinale
Epilobium sp.	Tilia americana
Fragaria virginiana	Toxicodendron radicans
Geranium robertianum	Ulmus americana

Report 50, Frazer Falls, unnamed stream, Williston, Chittenden County, Vermont.

No site number, surveyed 29 June 1983 by P.F. Zika.

A large cascade on a small woodland stream.

Atlas map 37, Essex Junction 7.5' quadrangle. Take U.S. Route 2 about 1.5 miles east from the center of Williston and turn left (north) onto a dirt road. This road crosses the stream in 0.3 miles. Follow a logging road west about 100 yards and the cascade will be visible below and to the south. Just above the site is a sand quarry.

* * *

The site is in a wooded ravine on a hill slope that adjoins the floodplain of the Winooski River. The woods in the ravine are hemlock-hardwoods, and on the slope are mostly hardwoods. The floodplain is open agricultural land and the nearest houses are about one-quarter mile from the site.

The stream is a small hillside brook about five feet wide, with clear cold water.

The site consists of a narrow rock chute less than five feet high that funnels the stream into a two foot wide channel, after which it descends about 20 feet in a short cascade and then enters the floodplain.

The rock is a schistose graywacke of the Cambrian Pinnacle formation. It is not particularly well-exposed and not very interesting structurally or geologically. The vegetation suggests that it is slightly limy.

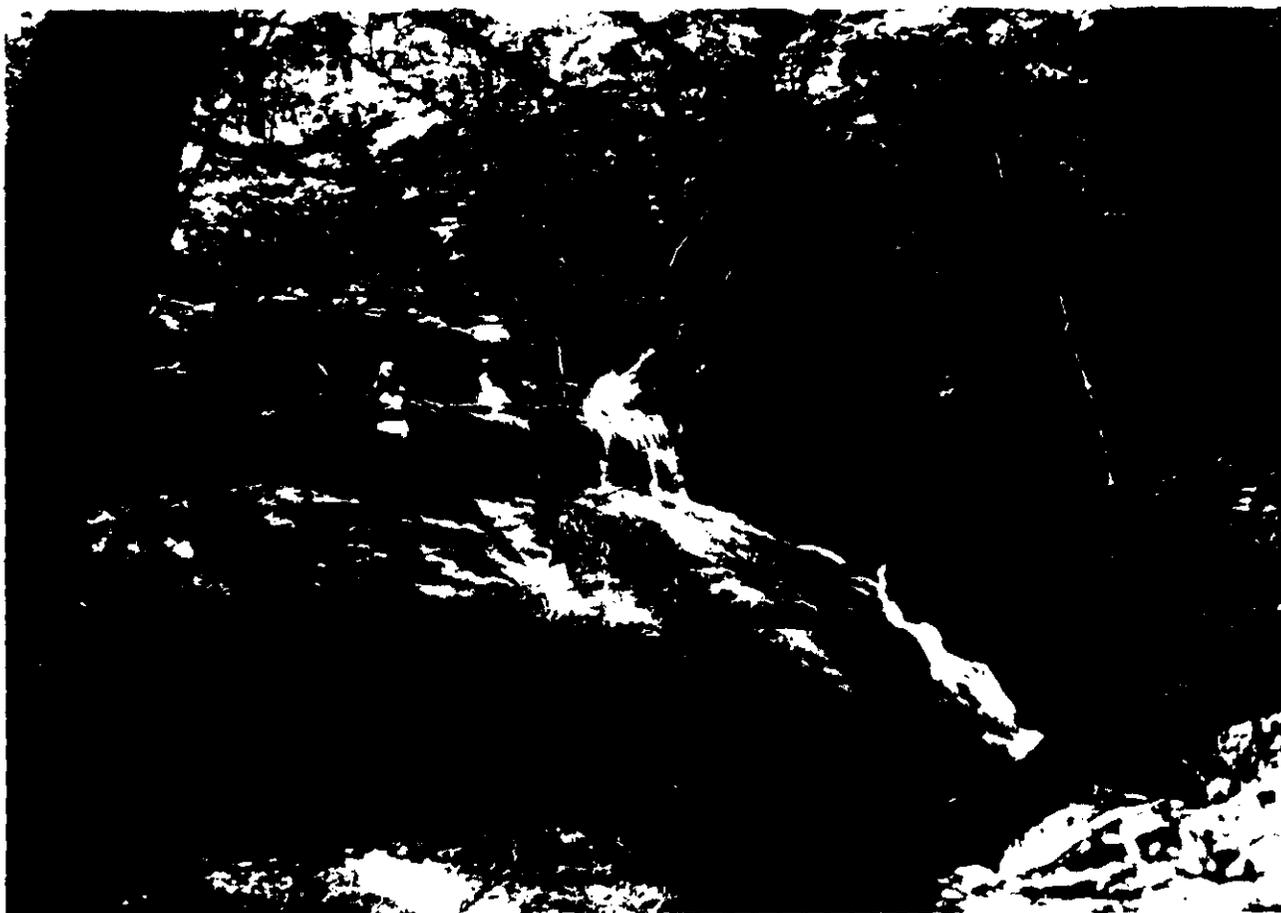
The vascular plants were ordinary except for a good-sized colony of the meadow horsetail, Equisetum pratense. At least 300 stems were found in the silty alluvium just below the falls in a wet meadow between the cascade and the road. Meadow horsetail is currently known from fewer than ten sites in Vermont; all but one of these is in the limestone belt in the west of the state.

Bryophytes were present but not exceptionally diverse. No rarities were found. No collections were made.

The falls receive at most light use. The water is too shallow for fishing or swimming and there are better party places nearby. There is a trail that crosses the stream just above the cascade. Some trash was present in the stream.

A nice but not unusual place. It may be quite pretty when the water is up in the spring.

* * *



FRAZER FALLS

Summary: Woodland setting, average rocks, average botany, one rare species below the cascade, moderately wild, some trash, clean water, no swimming, lightly used for walking and picnicking.

Vascular Plants of Frazer Falls

Tsuga canadensis	Gymnocarpium dryopteris
Fagus grandifolia	Carex communis
Betula alleghaniensis	Acer pensylvanicum
Carex amphibola	Thelypteris phegopteris
Polystichum acrosticoides	Cardamine pensylvanica
Dryopteris intermedia	Mitella diphylla
Prenanthes sp.	Dryopteris marginalis
Solidago caesia	Osmunda claytoniana
Epipactis helleborine	Adiantum pedatum
Aster cordifolius	Equisetum pratense
Carex sp. (ovales)	Lysimachia nummularia
Athyrium filix-femina	Acer saccharinum
Ariseama triphyllum	Chelone glabra
Smilacina racemosa	Tovara pensylvanica
Chelone glabra	Rumex obtusifolius
Polypodium virginianum	Carex brommoides
Clintonia borealis	Rubus odoratus
Circaea alpina	Fraxinus americana
Impatiens sp.	Tilia americana
Aralia racemosa	Ulmus rubra
Amphicarpa bracteata	Carex prasina
Poa palustris ?	Onoclea sensibilis
Eupatorium maculatum	Matteucia struthiopteris
Lactuca sp.	Taraxacum officinale
Acer spicatum	Geum canadense
Carex gracillima	Prunus virginiana
Veronica officinalis	Celtis occidentalis
Clintonia borealis	Solidago gigantea
Aster puniceus	Polygonum cilinode
Thalictrum polygamum	

Report 51, Moss Glen Falls II, Moss Glen Brook, Stowe, Lamoille County, Vermont.

Site 371, surveyed 13 October 1983 by P.F. Zika.

A series of large cascades and falls and a short gorge.

Atlas map 38, Stowe 7.5' quadrangle. From the center of Stowe drive north on Route 100 and turn right onto Randolph Road; take the first right turn onto Moss Glen Road; follow this across the stream, park, and follow the trail about 150 yards to the falls.

* * *

The site is a steep, northwest facing ravine in hemlock woods. The nearest house is about one-half mile down the road. The site is fairly near the road but feels remote because of the deep forest and the ravine and the noise of the falls.

Moss Glen Brook is a mountain stream above the falls and widens to a meandering alluvial stream below them. The water is very clean and clear.

From above, there is first a narrow gorge six to 12 feet wide by 40 feet deep with jagged, overhanging walls and small cascades; then a 20 foot falls with a cave and pool below them; then a continuous cascade 100 feet long; and finally, another 20 foot falls. In places there are sloping vertical walls to 60 or 80 feet high. A trail northeast of the stream has fine views of the lower falls and cascade.

The total drop of the cascade and falls together is about 100 feet, one of the three greatest drops on any stream in the state, and the greatest on an undammed stream.

The rocks at the site are part of the Ordovician Stowe formation, and there is supposed to be a contact between schists and greenstones or schists and amphibolites here. We did not locate the contact: much of the site appears to be schist, but another rock type may occur at the head of the upper gorge.

The rocks are mostly smooth, and with the exception of the pools at the base of the falls, potholes and sculptured rocks are uncommon. The rock is not limy.

The steep soil banks of the ravine and the nearly vertical schist faces provide very little habitat for vascular plants, and few species were noted.

Bryophytes were common in the gorge and near the main stream channel. No collections were made.

The site is famous and heavily visited. It is marked on the official Vermont highway map, and the Vermont Atlas (in the



MOSS GLEN FALLS II

correct location!). It is beautiful and dramatic and scenic and exactly what we imagine a mountain waterfall should be like. (And also exactly what, at least in Vermont, they very seldom are.) It is a beautiful picnic place and has good bathing and fair swimming and perhaps good fishing. In any event, the people living on the road are very tired of giving directions to the falls.

The site is clean except for a little litter and a chunk of concrete at the foot of the falls, the only remnant of a former hydro development.

From what we have seen, this is the most beautiful large woodland falls in the state. It is designated as an official natural area by the Vermont Department of Forests, Parks & Recreation, and is located in the Putnam State Forest.

* * *

Summary: Woodland setting, fine rocks and a spectacular falls, average botany, moderately wild, some trash, clean water, good bathing and fair swimming, very popular for scenery and picnics, some use for parties, heavily visited by tourists as well as locals.

HIGH IMPORTANCE: Highest undammed cascade in the state, beautiful site, important recreational area. Designated state natural area.

Vascular Plants of Moss Glen Falls II

Tsuga canadensis	Galium sp.
Thelypteris phegopteris	Fraxinus americana
Ulmus americana	Poaceae sp.
Aster puniceus	Agrostis perennans ?
Aster acuminatus	Glyceria striata
Laportea canadensis	Polypodium virginianum
Oxalis montana	Dennstaedtia punctilobula
Hydrocotyle americana	Picea rubens
Scutellaria lateriflora	Betula alleghaniensis
Dryopteris intermedia	

Report 52, Lime Kiln Gorge (= High Bridge Gorge), Winooski River, Colchester and South Burlington, Chittenden County, Vermont.

Site not numbered by the state, surveyed on 16 August 1984 by P.F. Zika.

A deep gorge traversed by a bridge. A gauging station but no dam.

Atlas map 36, USGS Burlington 7.5-minute or 15-minute quadrangle. From the junction of I-89 and Route 15 just east of Winooski City, take Route 15 east about one-half mile and turn right (south) on Lime Kiln Road. Cross the river on High Bridge and park at the pulloff on the left (north). Access to the rim of the gorge is from the railroad tracks on the north or some faint trails on the south.

* * *

The gorge is within the Burlington suburbs, with an airport, light industries, St. Michael's College, and high density housing nearby. Upstream from the gorge there are some large farms on the floodplain, and downstream the riverbanks are forested with cedars or dry oak and maple woods. About one-half mile downstream from the Lime Kiln Gorge is the Winooski Gorge (Report 55), a famous botanical site. Besides the bridge that traverses the gorge there is a gauging station and a retaining wall on the north side of the gorge, and a short distance beyond are deep quarries and the remains of the large kiln that processed limestone in the last century.

The Winooski River is 60 to 80 feet wide in the gorge. Its water is somewhat polluted: it has a distinct river smell and a murky green color, and is scummy and has some refuse and junk floating in it.

The walls of the gorge are nearly vertical and form a straight-sided gorge about 250 yards long and from 15 to 70 feet high. Below the railroad on the north bank there is a retaining wall about 15 to 25 feet high, built from the native stone.

The bedrock is a pale limestone or dolomite of Ordovician age. It forms steep, irregularly fractured walls with little smoothing or sculpture. There are no potholes but there are some rippled rocks at the upstream end of the gorge and there are several caves on the north shore. No potholes were found.

In the last century, this and the nearby Winooski Gorge were famous for rare plants. Currently many of the rarer species are gone. In some cases they may have been over-collected: the early botanists were unscrupulous collectors and used specimens of rare plants as a sort of a currency to exchange for specimens from elsewhere. In other cases the problem may have been the development and industrial use of the land near the gorge; rare

plant habitats were reduced by cutting of the forests, operation of the lime kiln and railroad, and perhaps by flooding from the dam downstream.

So far as we can determine, the following plants are no longer found at Lime Kiln Gorge:

Pterospora andromedea - collected here several times between 1881 and 1903, no longer known from any site in New England.

Isotria verticillata - recorded last from High Bridge in the early 1800's. Currently known from one site in southern Vermont.

Lupinus perennis - collected on the roadside somewhere between Winooski and Lime Kiln in 1902. No current Vermont stations.

Anemone multifida - collected here in 1881; currently known only from the Winooski Gorge, and considered endangered there.

Cypripedium arietinum - last seen at High Bridge in 1903. Currently known from only a few stations, and missing at many of the places where it formerly grew. Proposed as a state threatened species.

Shepherdia canadensis - reported at Lime Kiln in 1881. Currently rare in Vermont and restricted to the shores of Lake Champlain. This colony and one other were the only stations that were not on the lake shore. Considered a threatened species in Vermont.

The vascular plants currently found at High Bridge Gorge are all much commoner species than the ones just discussed, and the flora as a whole is similar to that of other limestone cliffs and gorges in Chittenden County. A list of the species observed is at the end of the report. Several species are noteworthy: Aster tradescanti and Deschampsia cespitosa are restricted to calcareous shores in western Vermont and are known from fewer than 20 sites in the state. There are about 50 plants of each at the gorge. Sorghastrum nutans is sparingly present at the beginning of the gorge. It is near the northern limit of its range in northern Vermont and is known from only three towns in Chittenden County. Pellaea glabella is a characteristic plant of limestone faces in northwestern Vermont, but it is scarce across most of New England. There are about a dozen plants at the head of the gorge, and it is possible there are others on less accessible cliffs downriver. Solidago randii, a goldenrod typical of high elevations and cold cliffs, is found in small numbers at the edge of the cliff on the south side of the gorge.

The gorge also has a recent ornithological rarity; a wintering gyrfalcon has been seen on the cliffs here on several different occasions over the last five years.

Lime Kiln Gorge does not receive heavy recreational use. Boating in this stretch of the river is difficult because of limited access and the dams downstream. Fishing is uncommon because of the lack of a shoreline along the tall bluffs. There is no easy way to swim in the strong current in the gorge, and the water is not clean enough for good swimming. The pulloff is commonly used as a rest area, but not many people try to hike along the river here. The railroad cut just north of the gorge is a popular rock-climbing site.

The tall steep walls of the gorge are the primary attraction of this site. From the bridge there are nice views west over the river and east towards the main ridgeline of the Green Mountains. It is one of the deepest gorges in Vermont. The gorge is dammed in the sense that a dam located 1,000 feet downstream floods the gorge.

* * *

Summary: Industrial setting, impacted by a hydroelectric project, average rocks, formerly with an exemplary vascular flora, now average biology, no privacy or wildness, some trash, polluted water, not a popular recreational site. One of Vermont's deepest gorges.

Vascular Plants Seen at Lime Kiln (= High Bridge) Gorge

Thuja occidentalis	Phleum pratense
Pinus resinosa	Carex eburnea
P. strobus	C. pensylvanica
Juglans cinerea	Aralia racemosa
Carya cordifomis	A. nudicaulis
Ulmus americana	Sonchus oleraceus
Quercus velutina	Nepeta cataria
Q. alba	Ambrosia artemesiifolia
Betula alleghaniensis	Erigeron canadensis
B. papyrifera	E. annuus
B. populifolia	Epilobium sp.
Populus tremuloides	Lactuca scariola
P. balsamifera	L. sp.
P. grandidentata	Arctium sp.
Tilia americana	Bidens sp.
Acer negundo	Polygonum arenastrum
Tsuga canadensis	Solidago juncea
Prunus serotina	S. caesia
P. virginiana	S. randii
Rubus odoratus	S. nemoralis
Sambucus canadensis	S. bicolor
Ribes cynosbati	Geranium robertianum
Cornus stolonifera	Impatiens capensis
Corylus cornuta	Campanula rotundifolia
Vaccinium angustifolium	Aster tradescanti
V. vacillans	A. linariifolius
Gaylussacia baccata	A. macrophyllus
Comptonia peregrina	A. lateriflorus
Kalmia angustifolia	Xanthium strumarium
Amelanchier spp.	Senecio paupercula
Viburnum trilobum	Melilotus albus
Rhamnus cathartica	Daucus carota
Vitis riparia	Hypericum perforatum
Clematis verticillata	Hieraceum sp.
Toxicodendron radicans	Anemone virginiana
Lonicera dioica	Aquilegia canadensis
Pellaea glabella	Galium circaezans
Dryopteris marginalis	Polygola paucifolia
Cystopteris bulbifera	Achillea millefolium
Pteridium aquilinum	Sanicula marilandica
Bromus inermis	Trifolium agrarium
Agropyron repens	Verbascum thapsus
Deschampsia cespitosa	Gaultheria procumbens
Poa compressa	Commandra umbellata
Agrostis sp.	Apocynum androsaemifolium
Andropogon gerardi	Houstonia caerulea
Elymus riparius	Viola adunca
Phalaris arundinacea	Melampyrum lineare
Sorghastrum nutans	Antennaria neglecta
Danthonia spicata	A. planginifolia
Panicum lanuginosum	

Rare Plants Presumably Extirpated From Lime Kiln Gorge

Pterospora andromedea
Cypripedium arietinum
Lupinus perennis

Isotria verticillata
Anemone multifida
Shepherdia canadensis

Report 53, Williston Gorge, Winooski River, Williston and Essex, Chittenden County, Vermont.

Site not numbered by the state, surveyed on 13 July 1984 by P.F. Zika.

A low limestone gorge below a dam and a bridge. Two rare plants grow in the gorge.

Atlas map 36, USGS Essex Junction 7.5-minute quadrangle. From Five-corners in Essex Junction take Route 2A south to the crossing of the Winooski River. There is a pulloff on the south side of the bridge at Overlook Park (maintained by the power company). Rough trails to the cliffs and ledges can be followed southeast or southwest from the bridge.

* * *

Williston Gorge is between Williston and Essex Junction; the surroundings are partly urban and partly rural. To the north is the urban center of Essex Junction. To the south in Williston is Industrial Avenue, with factories and several housing developments. There is a power dam at the head of the gorge; the powerhouse is on the northwest side of the Route 2A bridge that crosses the gorge. Utility lines from the powerhouse add to the urban feeling at the site. At night the dam is lighted and looks quite pretty when water is flowing over it. In the summer the river is usually low and there is little flow over the dam and through the gorge. The riverbanks above the rocky shoreline are steep and sparsely forested with young deciduous trees. Below the site is an intact stretch of floodplain forest.

The Winooski is a large lowland river, about 75 to 100 feet in the gorge. This width includes several rock islands in the gorge. At the time of the survey the river was a murky dirty green color, and it was impossible to see to the channel bottom to look for aquatic insects or algal growth. There was a slight river odor and bits of foam and scum in the eddies. Much of the sediment in the river was produced by heavy rains on the two days preceding the visit. In the spring high water levels leave driftwood and trash on ledges and clifftops.

The dam at the head of the gorge is about 40 feet high by 150 feet long. There are some nice moist wet rocks at the foot of the dam, potentially a good place for bryophytes. The rock-walled section of the gorge, below the dam, is about 150 to 200 yards long and from 15 to 35 feet high. West of this (just past the powerhouse) there is a complicated system of east-west oriented canyons with various islands, channels, and cliffs on the south shore. The stone islands are 150 to 200 feet long, thin, and nearly devoid of soil or vegetation because of intense scouring in springtime.



WILLISTON GORGE

The rocks are dolomites from the Cambrian Clarendon Springs and Sweetsburg formations. It is grey and white, has a mealy texture, with little carving or sculpture. The walls of the gorge and the islands below the bridge steep - over 60 degrees - and rugged, with lots of irregular corners and fractures. The rock is very limy and a number of calciphilic plants were seen growing on it.

Vascular plants are restricted to two general habitats at the site: fissures and pockets of soil on the dry ledges, and temporary pools or seepage zones where there is available moisture. The water level varies frequently and often drastically, depending on how much water flows over the top of the dam. High water levels in the spring remove most vegetation from the first ten vertical feet above the average shoreline.

The flora is similar to that of other limy cliffs in this part of the state. Four noteworthy species occur:

Erigeron hyssopifolius - occurs both up- and down-river from the bridge, on the Williston shore. About 15 plants were seen above the bridge and about 100 plants below. This northern species is restricted to two high mountain cliffs in Vermont and several river gorges. Williston Gorge is the only station for the species in the lowlands of western Vermont.

Shepherdia canadensis - a northern species that is mostly found on headlands along Lake Champlain. It is found to the west of the bridge, on the summits of several islands and on one bluff on the Williston shore. There are perhaps ten large shrubs and several seedlings. By local standards this is a thriving population. In Vermont, the southern limit of the range of this species, it is usually found as one or two isolated specimens when it is found at all, and young plants are uncommon. Shepherdia is believed to be declining in Vermont and is proposed as a threatened species in the state. Elsewhere in the northeast it is known from a number of New York populations, and a single plant in Maine.

Aster tradescanti, also occurs in Williston Gorge. There are at least 250 plants on ledges in damp and dry places. It is scarce in Vermont as a whole.

One rare species, the wood mint Blephila hirsuta was collected in the gorge about 1901, but is apparently extinct at present.

A detailed list of the vascular plants of the gorge and rocky shores is at the end of this report. Bryophytes were not collected, but do not appear to be common or diverse; they do not grow on the dry fractured rocks, and are restricted to springy places along the walls or at the base of the dam.

The waterfall over the dam is attractive and the picnic area on the south side of the bridge gets a moderate amount of use, as do the paths leading from there down to the river below the gorge. The gorge itself is rarely visited. Some fishing occurs below the gorge, and there is a well-traveled fishing trail. The gorge might conceivably be used as a whitewater run, but it is fairly short and hard to get into, and so far as we know is never or almost never run.

The gorge is messy because of the junk the river strands after spring flooding. The picnic area above it is well-maintained and receives a lot of local use. The length of this rocky stretch of river and its jaggedness are the primary aesthetic appeals. When the Winooski River is running at flood, the whitewater in the gorge is spectacular and frightening.

We rate the gorge as a popular local picnic site near an urban area, and because of four noteworthy interesting plants, one of which is a threatened species in Vermont.

* * *

Summary: Industrial setting, impacted by a hydroelectric project, nice rocks, two rare plants, otherwise an average flora for limy rock, not secluded, a mess, mildly polluted water, not used for swimming, popular for picnics and parties.

Vascular Plants of Williston Gorge

Zizia aurea	Juncus bufonius
Xanthium strumarium	J. dudleyi
Melilotus alba	J. brevicaudatus
Andropogon gerardi	Phleum pratense
Agrostis sp.	Plantago major
Poa compressa	Carex lurida
Trifolium repens	C. vulpinoides
Oenothera perennis	C. spp. (section ovales)
Hieracium piloselloides	Desmodium canadense
Campanula rotundifolia	Chrysanthemum leucanthemum
Fragaria virginiana	Taraxacum officinale
Sphenopholis intermedia	Senecio pauperculus
Cornus stolonifera	Prunus virginiana
Salix rigida	Ulmus americana
Solidago juncea	Solidago gigantea
Ranunculus acris	Erigeron philadelphicus
Aster tradescanti	E. hyssopifolius
A. lateriflorus	Galium sp. (palustris ?)
A. simplex	Apocynum cannabinum
Lythrum salicaria	Lysimachia ciliaris
Phalaris arundinacea	L. nummularia
Rhamnus cathartica	Betula papyrifera
Eleocharis sp. (tenuis ?)	Festuca rubra
Fraxinus americana	Vicia cracca
Hypericum perforatum	Acer saccharinum
Bromus inermis	Pastinaca sativa
B. latiglumis	Dactylis glomerata
Agropyron repens	Toxicodendron radicans
Convolvulus sepium	Artemesia vulgaris
Equisetum arvense	Shepherdia canadensis
Amelanchier stolonifera	Verbascum thapsus
A. arborea	Elymus canadensis
Berberis vulgaris	Thuja occidentalis
Andropogon scoparius	Aquilegia canadensis
Pinus strobus	Vitis riparia
Populus deltoides	Scirpus atrovirens
P. tremuloides	Onoclea sensibilis
P. balsamifera	Viola sp.
Blephila hirsuta (formerly)	

Report 54, Winooski Falls, Winooski River, Burlington and Winooski City, Chittenden County, Vermont.

Site not numbered by the state, surveyed in 1982 by P.F. Zika.

A small gorge and cascades, with an artificial falls over a dam.

Atlas map 36, USGS Burlington 7.5-minute or 15-minute quadrangle. The site is at the U.S. Route 7 bridge over the Winooski River between Burlington and the City of Winooski. Access is from Riverside Avenue on the Burlington (south) shore, or from the Winooski (north) shore behind the old industrial buildings that have been converted into apartments. There are plenty of fishing paths leading to the base of the falls and the rocky islands below.

* * *

Winooski Falls is a former industrial site. It is lined on the north shore with old mill buildings that have been converted in the last ten years into housing units, offices, and a shopping mall. A dam was constructed below the present Route 7 bridge in the early 1800's, at what was probably a natural falls. The area is congested with commuter and commercial traffic through most of the daylight hours, and is on an approach path for aircraft landing at Burlington International Airport.

The Winooski is a broad alluvial river about 400 feet wide at the head above the site, and about 75 feet wide in the gorge. The water is mildly polluted, with a river smell, murky color, and some junk and foam floating in eddies. Nonetheless there is a substantial sport fishery at the base of the falls, locally known as Salmon Hole. This is one of the few areas in the state where the endangered lake sturgeon (Acipenser fulvescens) is known to have spawned. The fishery depends on the turbulence and deep water at the base of the falls and through the rocky islands downstream. The old dam effectively blocks any upstream fish migration.

The site starts about 800 feet upriver of the Route 7 bridge where the Winooski drops over a broad series of ledges, creating a nice chain of low cascades that is visible to the northbound cars stuck in traffic on the bridge. Just downriver of the bridge, the river is confined by limestone cliffs on the north shore, and drops about 20 feet over the old dam. Below the falls, there are some stone islands and rocky recesses in the cliffs of the northern shoreline, and then the river swings north past several sandbars. The walls of the gorge below the falls are nearly vertical, although there are numerous flat shelves on the summits of the cliffs and in the coves. In most places, there is very little soil since the river inundates and scours the area in the spring.

The bedrock at Winooski Gorge is entirely Ordovician dolomitic limestone from the Shelburne formation. It weathers to a pale gray or white. The rock seems to break down in chunks or slabs, and is not sculpted or potholed by the river.

The falls are noteworthy for harboring Vermont's only surviving colony of Anemone multifida, a species rare in New England as a whole. It was formerly known from at least three other gorges in Vermont. All of these gorges have been dammed, and we suspect that the anemone populations were either flooded out, or suffered from reduced summer flows and a consequent decrease in humidity. The dam at Winooski Falls neither reduces summer flows nor floods the anemone's habitat, and in addition lets through enough flow at spring high water to cause some scouring of the ledges in the gorge, and hence, to reduce competition from woody plants.

Small colonies of Anemone multifida are present on the Burlington shore and on at least two of the rock islands, where they are relatively safe from human recreational traffic. Most of the population is on the outcrops on the north shore of the river, where the foottrails and steplike bedrock allow easy access. The plants are inconspicuous and easily trampled, and we believe that they are endangered by the gorges current use.

The falls and cascades are a substantial resource to the City of Winooski. The housing complexes and shops along the river boast of the view: the Waterworks Restaurant, for example, has large windows facing the upper cascades. In addition many people visit the falls to look around, picnic, or fish in the pools below. It is an attractive gorge and falls in an urban setting, and is admired by many residents.

Winooski Falls is threatened with the reconstruction of a dam, which would include a new powerstation and buried penstock. This project may diminish the flow over the falls, alter the habitat for fish, and might well cause the extinction of the last remaining colony of Anemone multifida in Vermont. Green Mountain Power regulates flow at their two upstream sites (Winooski Gorge and Williston Falls - GMP 18 and 19). These have more of an effect on flows than the Chase Mill project would. Chase Mill would be required to pass a minimum flow. The lowered flows will also make the site less attractive to the public and decrease the value of the riverfront developments. There is considerable grass roots opposition to the dam project in the Winooski area, and the City of Winooski is fighting the proposal.

* * *

Summary: Urban setting, average rocks, state endangered plant species present, important fishing location, not private or wild, some trash, mild water pollution, no swimming, popular for fishing, a local scenic attraction, threatened by a hydroelectric development.



WINODSKI FALLS

Some of the Vascular Plants of Winooski Falls

Populus tremuloides
Ribes odoratum
Clematis virginiana
Toxicodendron radicans
Pellaea glabella
Anemone virginiana
A. multifida
Ranunculus acris
Aquilegia canadensis
Senecio pauperculus
Andropogon gerardi
Deschampsia cespitosa
Campanula rotundifolia
Salix spp.
Eupatorium maculatum
Desmodium canadense
Fragaria virginiana



RAPIDS ABOVE WINOOSKI FALLS



SALMON HOLE, BELOW WINDOSKI FALLS

Report 55, Winooski Gorge (= Twin Bridges Gorge), Winooski River, City of Winooski, South Burlington, and Colchester, Chittenden County, Vermont.

Site not numbered by the state, surveyed on 30 July 1984 by P.F. Zika.

A deep gorge with two dams and rare plants.

Atlas map 36, USGS 7.5-minute or 15-minute Burlington quadrangle. Access to the gorge is a bit complicated. The best route is along the railroad line from Lime Kiln Road (off Route 15 near St. Michaels College). The tracks start near High Bridge and run west on the north side of the river, and cross the river twice. The two dams are between these bridges. Other routes include an access road to the dams from Winooski, and a service road for the airport strobe beacons to the south, in South Burlington.

The gorge may be easily seen from the northbound lane of I-89 between the Burlington and Winooski exits. The north side of the gorge is accessible from the highway, although parking there is dangerous and illegal.

* * *

The Winooski Gorge was formerly one of Vermont's most notable natural features. It has now been dammed, polluted, rendered inaccessible, and has lost its naturalness to the highways, railroads, quarries, airport, and dumps which surround it. It would be unknown to most residents in the county were it not visible from I-89.

The Winooski River is a broad alluvial river as it enters Winooski Gorge; at its narrowest point within the gorge it is still more than 150 feet across. The water at the time of the survey was a muddy green color and had a distinct river smell. Junk was common on the surface of the water and foam was evident in eddies. The water was too deep to search for aquatic insects and algae on the bottom.

The river is flowing westward here, and the gorge is basically s-shaped. About 1,000 feet southwest of Lime Kiln Gorge (Report 52) you encounter low rock walls where the river bends north. The walls increase to about 50 feet high near the first railroad bridge, and you encounter the backwater from dams. (There is an island in the center of the river and one dam on each side of it.) Here the river is about 500 feet across, and in places the ledges are covered by the water backed up behind the dam. Below the dams the river again turns southwest under the second railroad bridge and the I-89 bridge. The cliffs are about 60-80 feet high here, with a good stand of cedars and pines on top of them.

The bedrock of the gorge is a pale grey or whitish dolomitic limestone from the Ordovician Shelburne formation. The river has cut deeply and nearly vertically into it. There are several small caves along the rock walls of the river, and it is possible that the flooded portions of the gorge had potholes and sculpted rocks. Fifty feet east of the head of the gorge there are flat limestone ledges under a powerline clearing with a number of small solution cavities and other water-eroded features. The openings are an important rare plant habitat.

The vascular plants of Winooski Gorge are (or were) famous in the botanical world. The site formerly supported a remarkable limestone flora. Unfortunately many of the most renowned species, including the endemic Robbin's milk-vetch, have been extirpated by alteration of their habitats. A species list is attached to the end of this report. Even with the rarest species gone, we consider it an exemplary limestone flora. Some of the species that attracted the attention of botanists from the early 1800's on are noted below.

RARE SPECIES BELIEVED EXTIRPATED AT WINOOSKI GORGE

Anemone multifida - this plant lived on the limy ledges. This plant was formerly known in four gorges, has become extinct, probably through habitat alterations, at three of them, and is proposed as a state endangered species.

Astragalus robbinsii variety robbinsii - this variety is a local variant of a widespread (but uncommon) species and was never found anywhere except the river's edge in Winooski Gorge. It was destroyed when the gorge was dammed. It seems incredible to us now that no effort was made to cultivate it or to establish new populations on limestone ledges elsewhere along the Winooski.

Cypripedium arietinum - formerly found in limy woods by the gorge. This species has declined drastically in Vermont in the last 80 years and is proposed as a state threatened species. It is rare across all of the northeast.

Isotria verticillata - last seen in pine woods near the twin bridges around the turn of the century, a habitat that no longer exists near the gorge.

Pterospora andromedea - has vanished, perhaps because of habitat alteration, from all of its former sites in the northeastern United States. It needs old growth conifer forests, and formerly lived on the slopes above the gorge.

NOTEWORTHY SPECIES EXTANT AT WINOOSKI GORGE

Aster undulatus - this aster is common in the southern counties of Vermont but is much rarer north. There are fewer

than ten known sites for the species north of Rutland County in Vermont. It is scattered in deciduous and mixed coniferous-deciduous woods along the rim of the gorge.

Elymus wiegandii - a scarce plant of rivershores in Vermont, known from fewer than ten stations. A few plants are on the bank of the Winooski near the eastern railroad bridge.

Geranium bicknellii - a species with limited distribution in Vermont. There are fewer than ten extant stations, all in limestone country in western Vermont. About 50 plants are on sunny limestone ledges near the solution cavities at the head of the gorge.

Hieraceum venosum - scarce in Vermont, with fewer than ten known populations. A few plants were seen near the eastern railroad bridge in open woods on the rim of the gorge.

Lilium philadelphicum - scarce in Vermont, with fewer than 20 colonies known at present. Scattered plants are found in grassy situations near the solution cavities at the head of the gorge.

Oryzopsis pungens - rare in Vermont, known from fewer than five extant populations in the state. About 50 plants were seen in open deciduous woods near the eastern railroad bridge.

Panicum latifolium - scarce in Vermont, with fewer than 20 known stations. Scattered in the open deciduous woods by the eastern railroad bridge.

Panicum xanthophysum - rare in Vermont. Currently recorded at less than five stations across the state. About 20 plants in open deciduous woods near the eastern railroad bridge.

Pellaea glabella - a species scarce across most of New England but well represented in limy portions of western Vermont. A large population is reported to be on the walls of the lower gorge.

Pyrola rotundifolia - the distribution of this plant is not accurately known in Vermont. It perhaps is rare. Currently there are fewer than 20 known locations for it. About 100 plants are scattered in the coniferous woods south of the western railroad bridge.

Shepherdia canadensis - found along the gorge walls in the 1800's, and still present as a few scattered individuals near the solution cavities. A species considered rare across all of New England.

Spiranthes lacera - a scarce species in Vermont, currently known from fewer than ten stations. Five plants were seen in flower in open woods at the top of the bluff near the eastern railroad bridge.

Vitis aestivalis - a grape species mostly restricted to the southern part of the state, and rare there. A few vines are on the blufftops at the south end of the gorge.

It is worth noting that most of the interesting species found in the survey are open woodland plants from the rims of the gorge. A number of the extirpated species described above were characteristic of more mature woodlands, which have been repeatedly cut-over or cleared since the early 1800's. The riverside limy ledge community, which formerly supported Astragalus robbinsii and Anemone multifida, has been virtually destroyed by flooding above the dams and by the drastic flow control below the dam.

Because of industrial development and lack of access, Winooski Gorge does not get much use. There are some faint trails near the eastern railroad bridge, and on the land between Winooski Gorge and Lime Kiln Road. From these trails and the bridges there are fine views of the river cliffs. There is no swimming. The length of the gorge and its distance from public access points can give the hiker a sense of remoteness from people in some of the woodlands along the gorge, but you can always see powerlines and buildings, and always hear traffic noises.

It is a long and deep gorge, one of Vermont's largest, and is important botanically from a historical and contemporary standpoint.

* * *

Summary: Industrial setting, impacted by a hydroelectric project, average rocks, exemplary biology, not wild but in places private, clean, polluted water, no swimming, some use by hikers, the site of the extinction of an endemic plant.

Vascular Plants Seen at Winooski Gorge

Thuja occidentalis	Festuca ovina
Tsuga canadensis	Poa compressa
Pinus resinosa	Andropogon gerardi
P. rigida	Sporobolus vaginiflorus
Ostrya virginiana	Oryzopsis pungens
Acer saccharinum	O. asperifolia
Ulmus americana	Spiranthes lacera
Betula papyrifera	Viola adunca
B. populifolia	Hieraceum piloselloides
Populus tremuloides	H. venosum
Quercus rubra	H. scabrum
Q. alba	Solidago caesia
Prunus virginiana	S. canadensis
Shepherdia canadensis	S. squarrosa
Rubus odoratus	S. juncea
R. occidentalis	Arenaria stricta
Diervilla lonicera	Senecio paupercula
Viburnum acerifolium	Campanula rotundifolia
Rosa multiflora	Desmodium canadense
R. sp.	Melilotus alba
Cornus rugosa	Epipactis helleborine
Ceanothus americana	Viola adunca
Rhamnus cathartica	Chrysanthemum leucanthemum
Hamamelis virginiana	Aster undulatus
Gaylussacia baccata	A. novae-angliae
Vaccinium vacillans	A. simplex
V. angustifolium	A. macrophylla
Kalmia angustifolia	Hypericum perforatum
Aralia nudicaulis	Aquilegia canadensis
Vitis riparia	Erigeron canadensis
V. aestivalis	Oenothera sp.
Toxicodendron radicans	Anemone virginiana
Clematis verticillata	Berberis vulgaris
Asplenium ruta-muraria	Daucus carota
Dryopteris marginalis	Plantago lanceolata
Gymnocarpium dryopteris	Verbena hastata
Athyrium filix-femina	V. urticifolia
Polystichum acrosticoides	Lythrum salicaria
Pellaea glabella	Ranunculus acris
Luzula multiflora	Prunella vulgaris
Carex arctata	Lotus corniculata
C. vulpinoides	Rumex crispus
C. eburnea	Apocynum cannabinum
Danthonia spicata	Cuscuta gronovii
Panicum linearifolium	Mentha arvensis
P. xanthophyllum	Lycopus uniflora
P. latifolium	Rorippa palustris
P. lanuginosum	Lysimachia ciliata
P. dichotomum	L. nummularia
Elymus wiegandii	Xanthium strumarium
E. canadensis	Oxalis europaea

Phleum pratense
Bromus inermis
Scirpus atrovirens
Juncus dudleyi
Phalaris arundinacea
Agrostis stolonifera
A. alba
Pyrolla elliptica
P. rotundifolia
Hepatica americana
Sanicula marilandica

Commandra umbellata
Galium mollugo
G. triflorum
Stellaria graminea
Cerastium vulgatum
C. sp. (? nutans)
Veronica officinalis
Prenanthes alba
Hackelia virginica
Geranium bicknellii
G. robertianum

A partial list of extirpated species at Winooski Gorge

Anemone multifida
Astragalus robbinsii var. robbinsii
Cypripedium arietinum
Isotria verticillata
Pterospora andromedea



WINOOSKI GORGE