



THE NORTHERN RIVERS LAND TRUST

Wolcott Pond Watershed Initiative

Final Report | August 2021

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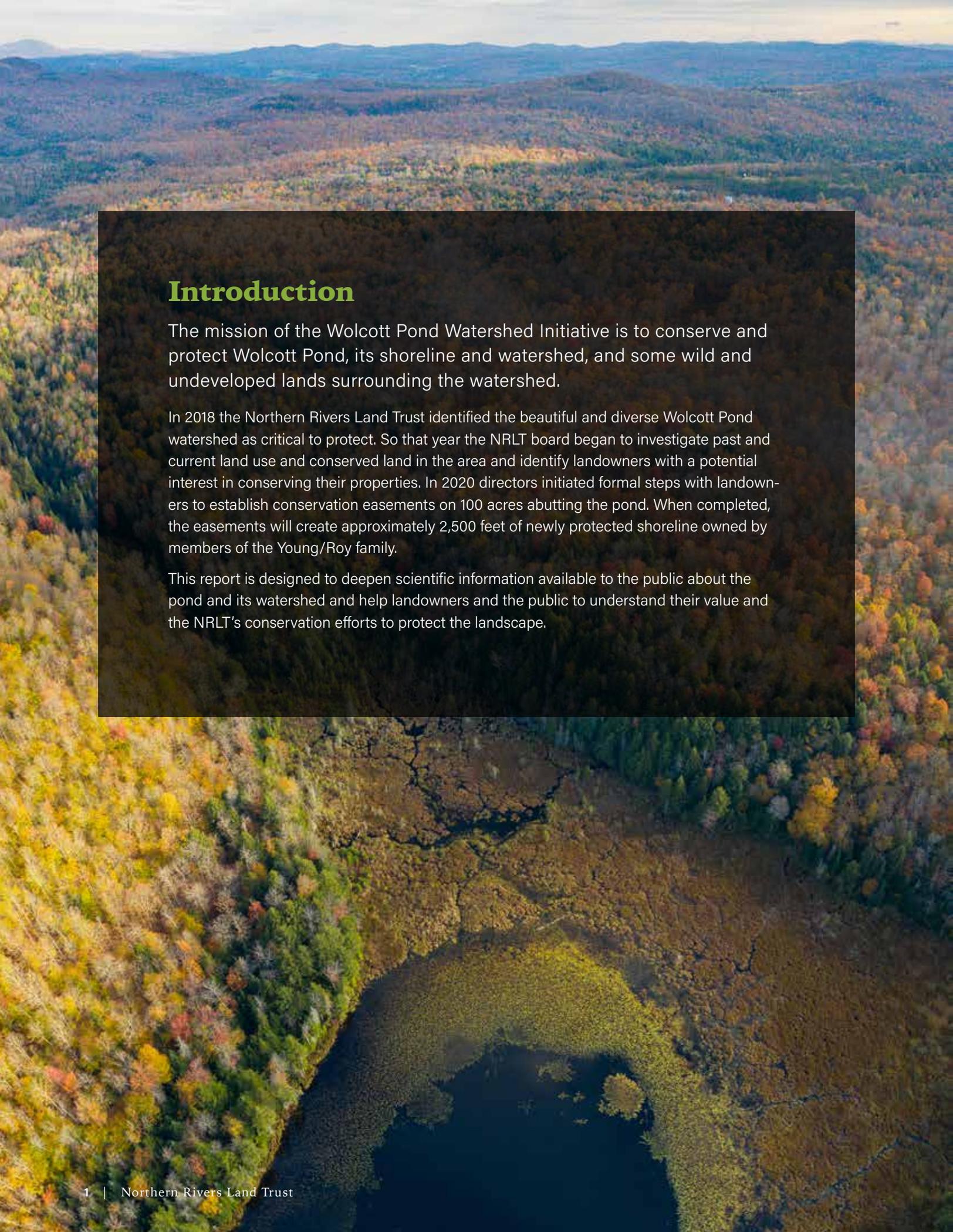


The Northern Rivers Land Trust (NRLT) is dedicated to protecting the natural, scenic, and working landscapes in the headwaters of the Winooski, Lamoille, and Black Rivers. NRLT was established to serve the towns of Albany, Craftsbury, Greensboro, Hardwick, Walden, Wolcott, and Woodbury. In addition, it holds conservation easements in Glover, Lowell and Stannard. As a registered non-profit 501(c)3, we work to establish conservation easements with landowners who want to protect open space, wildlife, other important resources, and/or recreation opportunities for the benefit of future generations.

Wolcott Pond Watershed Initiative

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An aerial photograph of a vast forest landscape. In the foreground, a dark, irregularly shaped pond is visible, surrounded by dense trees with autumn-colored foliage in shades of yellow, orange, and brown. The forest extends into the distance, with rolling hills and mountains visible under a clear sky. A dark, semi-transparent rectangular box is overlaid on the upper portion of the image, containing text.

Introduction

The mission of the Wolcott Pond Watershed Initiative is to conserve and protect Wolcott Pond, its shoreline and watershed, and some wild and undeveloped lands surrounding the watershed.

In 2018 the Northern Rivers Land Trust identified the beautiful and diverse Wolcott Pond watershed as critical to protect. So that year the NRTL board began to investigate past and current land use and conserved land in the area and identify landowners with a potential interest in conserving their properties. In 2020 directors initiated formal steps with landowners to establish conservation easements on 100 acres abutting the pond. When completed, the easements will create approximately 2,500 feet of newly protected shoreline owned by members of the Young/Roy family.

This report is designed to deepen scientific information available to the public about the pond and its watershed and help landowners and the public to understand their value and the NRTL's conservation efforts to protect the landscape.

Significance of the Watershed

Wolcott Pond is located in the Lamoille River watershed, which covers more than 700 square miles until the river meets Lake Champlain. The Wolcott Pond watershed is itself approximately 831 acres, or 1.29 square miles (Figure 1). It is dominated by forested land and held by 23 landowners, and land uses include farming, logging, recreation, and residential, both full time and seasonal. The semi-wild, 73-acre pond is reached from East Hill Road in Wolcott at a Vermont Department of Fish and Wildlife fishing and boating access.

Conservation of the pond and watershed is critical for three reasons: connectivity to nearby conserved areas such as the Bear Swamp complex and East Hill Wildlife Management Area; a largely intact wild shoreline that enhances water quality in the pond and the Lamoille River watershed; and protection of noteworthy populations such as common loons and wild azaleas.

CONNECTIVITY TO OTHER CONSERVED PROPERTIES

The Vermont Center for Geographic Information's 2019 Protected Lands Database (VPLD) shows approximately 18 percent of the town of Wolcott in some form of protection or conservation. The Wolcott Pond watershed sits in an upland region amid a myriad of conserved areas in east-central Wolcott (Figure 2). This landscape of fragmented properties with varying degrees of protection provides a rare opportunity for the NRLT and other organizations to connect the parcels into a larger wild lands complex in the Lamoille River watershed, promoting continued protection of the watershed and ensuring connectivity for wildlife corridors.

The nearby East Hill Wildlife Management Area is 962 acres in size, of which only 452 acres are owned by the state of Vermont. Management is split between the Vermont Fish and Wildlife Department (256 acres southeast of the pond) and the Vermont Department of Environmental Conservation, formerly the Water Resources Board (196 acres southeast of the pond). In the summer of 1963 the state purchased hunting rights deeded

in perpetuity on nearby privately owned properties, adding 706 acres for public access.

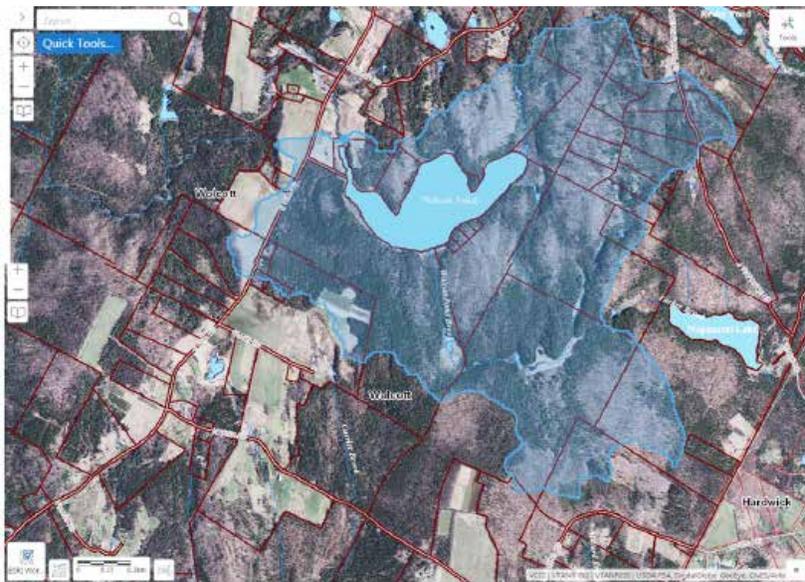


Figure 1: Wolcott Pond watershed (Natural Resources Atlas, Vermont Agency of Natural Resources)

The primary objectives of the WMA are to enhance wildlife habitats and hunting. Hunting of all game species is allowed within this area, as well as trapping, hiking, fishing, and wildlife viewing. A small meadow at the entrance of the WMA is also maintained to provide a food source for wildlife by mowing and releasing—that is, removing competing vegetation from around—the apple trees. Wood duck boxes have been installed and are maintained for nesting, and the beaver meadows are a favorite among waterfowl.

Wolcott Pond benefits from the abutting state-owned land. According to Tim Appleton, wildlife biologist for the Vermont Fish and Wildlife Department unit managing the East Hill Wildlife Management Area (WMA), the state rarely sells its land, so the status of the WMA is “stable,” despite the lack of a revised management plan. Appleton said WMAs are in fact the most secure type of state land, managed for wildlife-based habitat and recreation and subject to neither expanded trail-based recreation nor real estate development. This helps ensure that the pond and its watershed will remain forested, benefiting water quality and wildlife.

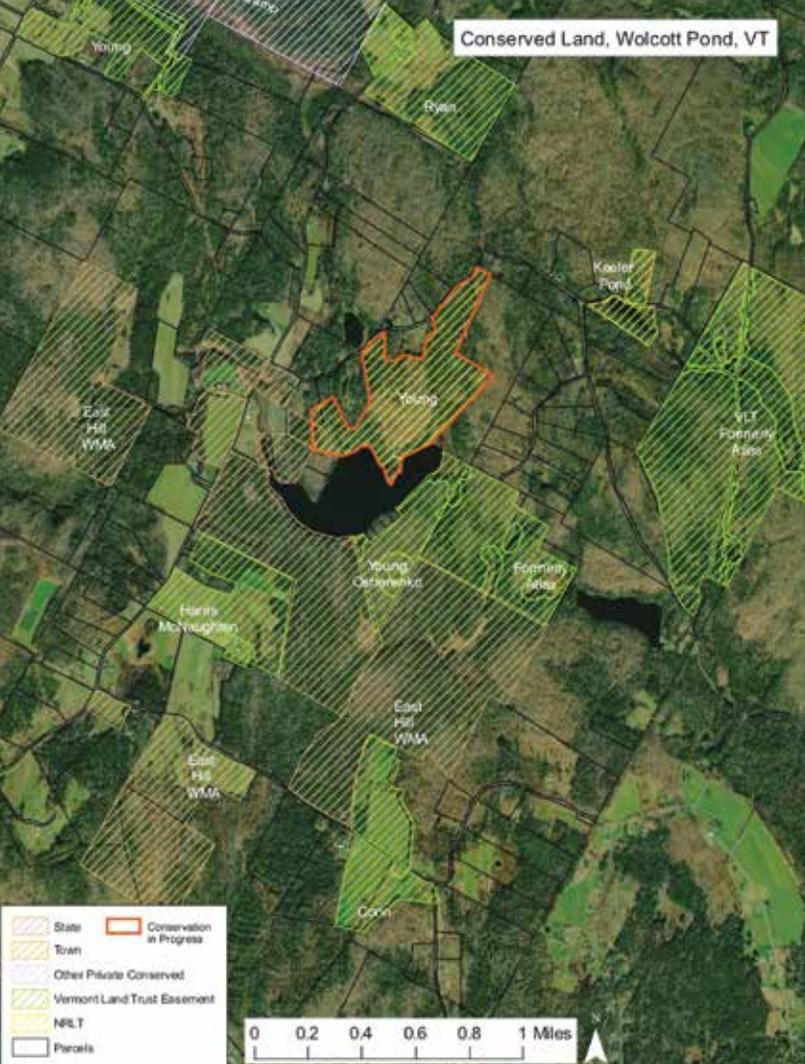


Figure 2: Conserved land around Wolcott Pond (Vermont Center for Geographic Information)

Private organizations also are conserving land in the area. The Vermont Land Trust (VLT) holds conservation easements on 1,745 acres in Wolcott. Two privately owned parcels conserved by VLT are located in the Wolcott Pond watershed, one abutting the pond and the other abutting the East Hill Wildlife WMA. The Nature Conservancy protects Bear Swamp northeast of Wolcott Pond through a deed restriction that determines specific land uses and prohibits development. The Northern Rivers Land Trust holds conservation easements on 284 acres in Wolcott, the most recent 170 acres added in 2020 about two miles west of Wolcott Pond on nearby Town Hill Road. A second easement protects Keeler Pond to the east of the pond. These NRLT easements are held in perpetuity and ensure that the land will be forever a wild or working landscape.

WILD SHORELINE

NRLT has long sought to protect Wolcott Pond, which features only one house and four off-the-grid cabins tucked into the forested landscape; only the house and one cabin are visible from the water. When the land trust completes conservation easements with the Young/Roy family, almost a half-mile of undeveloped shoreline will be added to protected acreage. But there is more to be done: While much of the remaining shoreline is owned by the state of Vermont or is already in conservation easement, approximately a fifth will still be without protection.

NOTEWORTHY POPULATIONS

Extensive wetlands surround the pond’s perimeter, with about half of the shoreline in sweet gale swamp. Eric Hanson, biologist for Vermont’s Loon Conservation Project at the Vermont Center for Ecostudies, described Wolcott Pond in the Summer 2020 *Loon Caller* as “edged by a landscape of waterlogged hummocks, providing protection from most shoreline predators.” In an interview, Hanson said the pond has one of the best marsh habitats in the state for loon recovery.



Typical wetland at Wolcott Pond

Common loons have a remarkable presence on Wolcott Pond as “an important symbol of the wildness of the place,” according to former landowner Sarah Shevenell in her memoir *Ruble Camp*. Changes in habitat threatened the loon in Vermont until 1978, when the Vermont Loon Recovery Project (forerunner of the Loon Conservation Project) began reintroduction efforts

by importing breeding pairs. Shevenell’s family, which had a 100-year history of ownership on the pond, noted in their camp journal the return of a breeding pair to Wolcott Pond in 1988. Family members recorded the loons’ presence and chick count for the next 18 years. Protective efforts by the Department of Fish and Wildlife and the Loon Conservation Project have continued to benefit Wolcott Pond. As recently as 2021 anglers and paddlers have seen a breeding pair on the pond.

However, changes in loon productivity in the last 10 years are apparent when compared with the previous two decades, according to Hanson. The Wolcott Pond Loon Productivity 1990-2020 report shows an increase in nest failure and chick mortality, with a decrease in chicks surviving to August. Causes, when they are known, are varied. Hanson said the two chicks on Wolcott Pond in 2020 died mysteriously, another died in 2011 from unknown causes, and a chick in 2003 died from swallowing a lead sinker. Hanson and the staff of the Vermont Center for Ecostudies will continue to investigate the causes of loon deaths at Wolcott Pond and hope to obtain more information through future necropsy studies.

Beyond loons—which the Agency of Natural Resources’ Natural Heritage Atlas lists as “uncommon” on Wolcott Pond—the marshy habitat has also provided a rich environment for five threatened species of water-loving plants on the

state list: prickly hornwort (*Ceratophyllum echinatum*), rare; large water starwort (*Callitriche heterophylla* var. *heterophylla*), rare; American shore-grass (*Littorella americana*), rare; water burweed (*Sparganium fluctuans*), uncommon; and Nuttall waterweed (*Elodea nuttallii*), uncommon. The atlas data reveal that no recent scientific studies have been conducted at Wolcott Pond, so the current status of threatened species is unknown.

Another rarity at Wolcott Pond is the native pink azalea (*Rhododendron prinophyllum*) formerly known as *R. roseum*—which landowner Steve Young calls “a much more appropriate name” for the beautiful flower. Also called June pink or roseshell azalea, it produces a brilliant pink flower with substantial height in bush form in open woods near swamps and ponds. Young said this azalea is a relatively common plant in southern New England and in the southern Appalachians, but the only station in northern Vermont seems to be at Wolcott Pond. Wildlife biologist Appleton noted the azalea is not currently listed on the Natural Heritage Inventory, and its inclusion would be worth pursuing with Vermont Fish and Wildlife.

According to Young, the azalea population is barely holding on, probably because of habitat change and deer browsing. The best stand at Wolcott Pond can be found on one of the distinctive peninsulas, but other individuals along the south shore are often too heavily browsed to flower. In years gone by,



Native pink azalea (*Rhododendron prinophyllum*)

Young could smell the flowers, which have a spicy scent like cloves, when canoeing along that shore in early June. The potential exists to grow plants

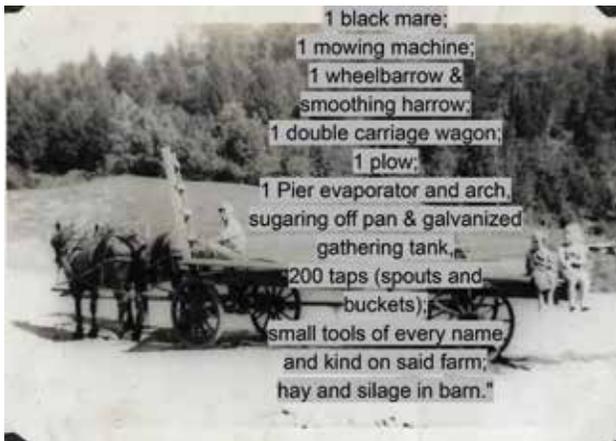
from seed, he said: It's quite easy, which is why the azaleas have interested horticulturalists for breeding hardy hybrids.

Historical Land Use

"In surface, Wolcott is somewhat hilly and uneven, though it possesses no mountains. The soil is usually of a good quality and produces fine crops of the grains and grasses indigenous to the latitude, while the rich pasturage of its many hill slopes afford sustenance to many herds of cattle."

– Gazetteer of Lamoille County Vermont for 1883-84

To understand the current landscape, both the natural communities and the land uses, the past can provide useful information. Deed research, following the sale and purchase of a parcel of land over time, may confirm what we already know—or contradict what we think we know. In either case, public records combined with historical images enrich our knowledge of the landscape and reinforce our desire to protect it.



The Wolcott Pond watershed is now mostly forested, with small areas of pasture and hayfield. Historical records show a mix of farming and forestry activities, some of which must have supported the village mills along the Lamoille River (see Appendix A). In earlier times, more land was cleared, although much of the land surface was too rough to ever be farmed. Until the arrival of the railroads in the mid-19th-century, farmers produced their own grain, often on small—by today's standards—plots. They can sometimes be identified by the smooth surface of the terrain and stone fences or piles of rocks removed from the

plowed fields, often in areas that are now heavily forested. It was also usual to allow cattle, especially young stock, to forage in wooded areas, especially when new growth followed logging. This accounts for strands of barbed wire often found deeply embedded in sizable trees. Abandoned farmsteads, including cellar holes, can still be found in a few of these locations. It would be interesting to get more detailed information on these.



Farming and forestry in 1900, with equipment lists from deeds of the Young/Roy property (Wolcott Historical Society)

Shevenell's memoir supports this impression (see Appendix C). A 1910 warranty deed shows that Shevenell's grandfather Dr. George Rublee, the town's general practitioner and an avid fisherman, bought one acre on the pond from Clarence Lanpher for \$40. In exchange for a right-of-way across Lanpher's land to reach the parcel, Dr. Rublee conveyed him the rights to all "merchantable lumber that are eight inches or more at the stump that stand within three rods of the line; said trees to be cut within 30 days from the date of this deed." The Rublee family and descendants owned this notable south-facing point until 2018, when it was sold to the Young/Roy family.

Young remembers seeing Wolcott Pond for the first time in 1949, when a cow pasture ran along the western shore and beavers were first returning to northern Vermont (see Appendix B). He recalls seeing stumps underwater—still visible today as beavers continue to impound water on the pond. Many large stumps, probably white pine, also stand

in the forest along the shoreline as remnants of timber harvest in the 19th century. Young believes that most land around the pond has always been forested, because the nearby ledges are steep, except for small patches where piled stones in the woods indicate that fields were cleared and improved.

Natural History of Wolcott Pond and Watershed

The flora and fauna in the Wolcott Pond watershed are varied, unique, and associated with two general natural communities: upland forests and wetlands.

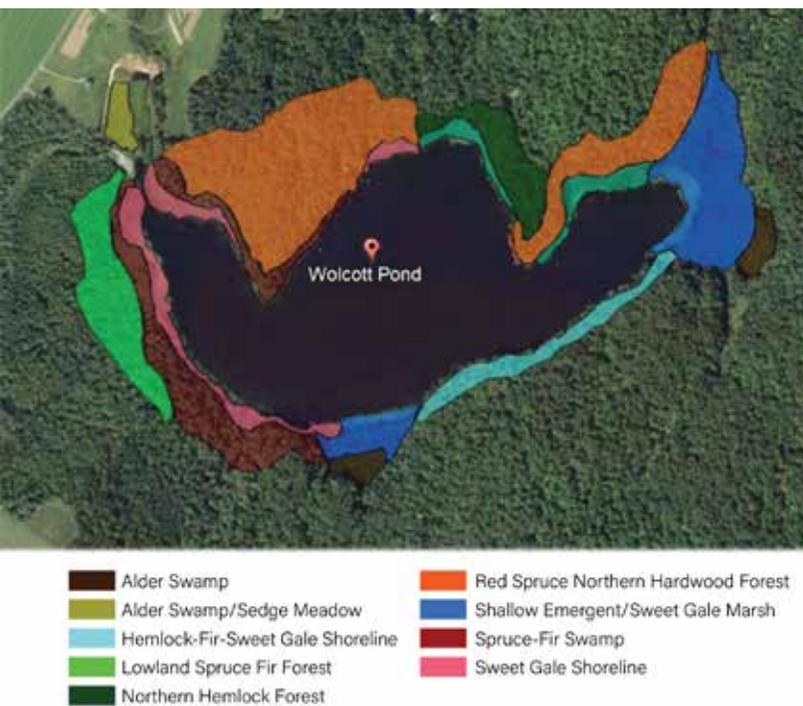


Figure 3: Natural Communities in Zones around Wolcott Pond (Map by Hannah Bowen from Google Earth base map, 2018)

Natural Communities of Wolcott Pond and Watershed

The following detailed description of Wolcott Pond natural community types is based on a bioassessment conducted by Sterling College graduate Hannah Bowen during the summer of 2018 (Figure 3). Field data were collected and organized using the *Synonymy of Vermont Natural Community Types with National Vegetation Classification Associations* from the Natural Heritage Inventory, Vermont Fish and Wildlife Department (2016).

The data were reviewed for accuracy by Eric Sorenson, the department’s natural community ecologist. (For more information about the plants of Wolcott Pond, see Appendix D.)

ALDER SWAMP

Bordering the Shallow Emergent/Sweet Gale swamp mosaic, the Alder Swamps of Wolcott Pond are a classic composition of speckled alder, multiple varieties of willow shrubs, red-osier dogwood, and red maple saplings. Dominant herbaceous plants include Canada manna grass, bluejoint grass, and tussock sedges. As is the case in many other alder swamps across the state, this natural community at Wolcott Pond is beaver influenced, as seen by the three or four beaver lodges often evident near the perimeter.

ALDER SWAMP/SEDGE MEADOW



Wild raisin (*Viburnum nudum* L. var. *cassinoides*)

Although comprising only a small portion of the Wolcott Pond ecosystem and bordering farmland on the northwest edge, the Alder Swamp/ Sedge Meadow mosaic houses diverse herbaceous species, including up to six species of goldenrod and at least 10 species of graminoids (herbaceous plants with grasslike features). The meadow is sprinkled with alder, wild raisin, and willow shrubs.

HEMLOCK/BALSAM FIR SEEPAGE SWAMP

This unique natural community type, relying on high concentrations of dissolved minerals, is found close to the borders of Wolcott Pond. The canopy is dominated by hemlock and balsam fir. Mountain holly and winterberry dominate the shrub layer. Canoeists can note the obvious red berries of winterberry and mountain holly usually at the pond's edge. The diverse herbaceous community includes favorites such as cinnamon fern, bunchberry, foamflower, bluebead lily, and twinflower.

LOWLAND SPRUCE FIR FOREST

The Lowland Spruce Fir forest is commonly found adjacent to wetland swamps and, contrary to its name, can also be found at higher elevations. The forest at Wolcott Pond has the late successional dominants of red spruce and balsam fir. The dense shade of this natural community makes the herbaceous vegetation less dense than other forest types, but it is rich in Lycopodium, sphagnum mosses, and other bryophytes such as liverworts. Goldthread, bluebead lily, and shrubs such as speckled alder and wild raisin have a minor presence.

NORTHERN HEMLOCK FOREST

As the name suggests, this natural community type at Wolcott Pond is a nearly pure hemlock stand sprinkled with a few hardwood tree species such as American beech and red maple. The darkness provided by the bending hemlock canopy creates a distinct composition of shade-tolerant herbaceous species such as partridgeberry, marginal wood fern, and club mosses.

RED SPRUCE CINNAMON FERN SWAMP

The presence of red spruce and thickets of cinnamon ferns with winterberry, mountain holly,

viburnums, and high bryophyte cover create this distinct Red Spruce Cinnamon Fern Swamp. On Wolcott Pond this swamp blends at its border with the Sweet Gale Shoreline natural community.



Mountain holly (Ilex mucronata)

RED SPRUCE NORTHERN HARDWOOD FOREST

As a mixed hardwood/softwood forest type, Red Spruce Northern Hardwood Forest can be quite varied in its composition, depending on the stage of succession. Many landowners and hikers will recognize this forest type, a common natural community in Vermont, at Wolcott Pond, with red spruce as the dominant softwood and hardwoods such as yellow birch, black cherry, and red and sugar maple evident as well, in addition to successional species like paper birch and quaking aspen.

SHALLOW EMERGENT/SWEET GALE SWAMP

This wetland mosaic natural community type is rich with intriguing herbaceous wetland species. Carnivorous sundews grow on semi-submerged logs, while bur reeds, cattails, and bulrushes emerge out of the water several yards from the shores of adjacent beaver ponds. Bulb-bearing water hemlock, nodding bur marigold, and spotted Joe-Pye weed grow on exposed muddy shores. Tussock sedges and sphagnum mosses create floating mats that merge with the characteristic shrubs of the sweet gale shoreline community. These communities may be the most species rich in the study area.

SWEET GALE SHORELINE

The Sweet Gale Shoreline of Wolcott Pond

occupies a thin strip of the shoreline for more than 50 percent of the pond. As the name implies, this natural community is characterized by sweet gale, a shrub belonging to the bayberry family. It can be recognized by its pleasantly sweet odor when ruffling or crushing its leaves. Also prominent on this shoreline are the heath family plant leatherleaf and the bright white-flowering meadowsweet. Other important plants in this shoreline community include swamp rose, swamp candles, and marsh St. John's-wort.



A forest edge at Wolcott Pond

Wildlife Habitats of Wolcott Pond and East Hill Wildlife Management Area

Wildlife have specific needs in order to survive: sufficient and appropriate food, water, cover, and space. The area of land or water where these requirements are found for specific wildlife is a wildlife habitat. During the fall of 2018, Sterling College students developed a wildlife habitat assessment of the East Hill Wildlife Management Area and the southwestern edge of Wolcott Pond as part of their Wildlife Conservation and Management course. The students conducted field

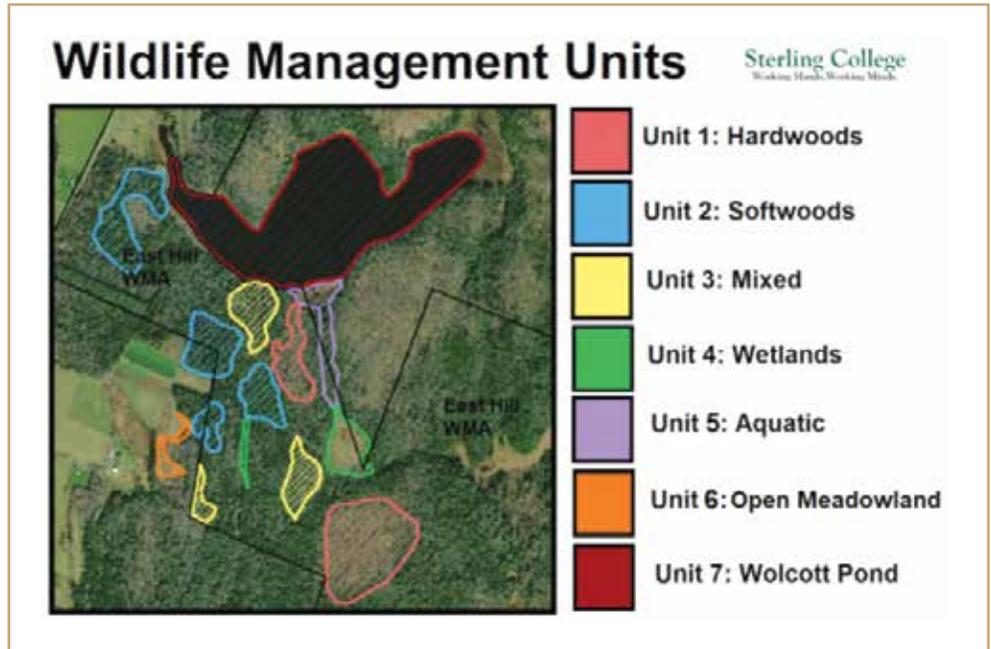


Figure 4: East Hill Wildlife Management Area natural community units (Sterling College)

research in order to delineate habitat types as well as document evidence of wildlife (tracks, scat, and browse). Game cameras were positioned in two different natural communities to provide the students with a general idea of wildlife occurrence. Working with Jud Kratzer, Vermont Department of Fish and Wildlife fisheries biologist, students conducted a preliminary survey of the fish in Wolcott Pond using electrofishing—a sampling tool that temporarily stuns or captures fish. For the purpose of this assessment, the East Hill WMA was divided into seven wildlife management units: hardwood stand; softwood stand; mixed forest; wetland; aquatic areas (stream and beaver pond); meadow/shrubland; and Wolcott Pond (Figure 4). Each unit is based on the natural community types defined within *Wetland, Woodlands, Wildlife: A Guide to the Natural Communities of Vermont* (Thompson & Sorenson, 2000). The following information is from the students' assessment.

UNIT 1 – HARDWOOD FOREST

Consisting mainly of American beech, red maple, and yellow birch, with some hemlock, red spruce, and balsam fir, this unit can be defined as a Beech-Red Maple-Hemlock Northern Hardwood Forest. These woodlands are important habitats for birds such as blue jays and turkeys, as well as bears.

Hard mast from beech trees is a main food for these species (mast is the term for nuts, seeds, buds, or fruit that wildlife eat). During the fall the shade-tolerant beech trees keep their leaves for longer than other species, providing cover for birds such as warblers and owls as the weather gets colder. Softwoods around the perimeter mix and transition with the hardwoods.



Fisher (*Pekania pennanti*) (Sterling College game camera, October 2019)

UNIT 2 — SOFTWOOD FOREST

This softwood unit can be described as a Lowland Spruce-Fir Forest. Lying between various mixed stands, hardwood stands, wetlands, and pasture, this forest has a significant vertical structure as well as a dense midstory and herbaceous layer. The soil is very wet and makes the forest susceptible to windthrow—uprooting by wind—because of the shallow root systems.

The stand is varied in natural communities with an abundance of wildlife, including red squirrels, flying squirrels, and fishers, as well as songbirds such as brown creepers and white-breasted nut hatches. The site has wet, acidic soils supporting herbaceous flowering plants such as three-leaved goldthread, Canada mayflower, wild sarsaparilla, wood sorrel, and bunchberry. Bunchberry and Canada mayflower provide food for cedar waxwing, red fox, raccoon, and black bear.

The hemlock stand has a heavy canopy with an almost absent midstory and an understory of immature balsam fir, red spruce, and eastern hemlock. This site has a swale running through it, filled with a dense patch of cinnamon fern. The softwood forest is an excellent winter deeryard,

with evidence of browse and scrape from white-tailed deer.

UNIT 3 — MIXED STAND

This unit is characterized by even-aged stands of mixed forest, which include historical signs of logging such as old stumps. Young trees dominate, including American beech, maples, and balsam fir. The canopy is mostly closed but contains some large openings. There is evidence (scat) of bears and moose. Snags (dead trees missing their tops or smaller limbs) often include woodpecker cache indentations.

This unit is important because it provides a varied habitat that increases forest productivity and biodiversity. The mixed stands benefit many species such as whitetail deer, ruffed grouse, and wild turkey. Hard mast such as beechnuts and catkins provide year-round food, and the softwood offers protection and cover from snow and other harsh weather.



Red fox (*Vulpes vulpes*) (Sterling College game camera, November 2018)

UNIT 4 — WETLAND

Two different wetland types, open and forested, are present. The open wetland has standing water, lacks trees, and stays saturated all year long. The forested wetland also features a saturated area that includes vegetation with a canopy, which can be partial or closed. The open wetland creates a habitat suitable for semi-aquatic flora and fauna. These types of areas are vital for moose. The availability of water, nutrients, and sunlight facilitate vegetation that greens up fairly early in the spring and provides browse for animals. The

forested area is slightly slower to green up due to the reduced availability of sunlight. The forested wetland also provides greater cover for animals to evade predators.



Open wetland at Wolcott Pond

The forested wetland has a much different feel and is host to species not found in the open wetland. Some herbaceous groundcover includes mosses and sedges along with various ferns such as sensitive ferns. A shrub layer of hobblebush lines the outskirts of a 15-yard swampy area. Directly surrounding the wetland are softwoods such as balsam fir and red spruce as well as eastern hemlocks. The forest abruptly turns to a single aged hardwood stand consisting of yellow birch, American beech, and a variety of maples. It is a great habitat for amphibians like wood frogs, spring peepers, spotted salamander, red spotted newt, and northern red-backed salamander.

UNIT 5 – AQUATIC

This unit includes Wolcott Brook and Wolcott Pond. The pond has current beaver activity adjacent to easily accessible swamps with woody vegetation. The brook is a vital component of the biological community, providing drinking water for passing animals such as deer, bear, and moose. Insects and other macro-invertebrates are also present around the brook.

UNIT 6 – MEADOW AND SHRUBLAND

When managed properly, meadows and shrublands can be hubs of biodiversity and important additions to ecosystems with their various habitat types. This vegetation, composed of grasses and sedges, is a crucial habitat that provides open space within a

larger forested area. Also present are sources of soft mast such as wild apple trees and raspberry bushes. These foods provide good nutrition to foragers through spring and summer. Species that prefer to spend time at the edge of various habitat types benefit greatly from the shrublands. Not only is this area an important food source for grazers, it also provides shelter for small rodents.

Plants found in the fields include yarrow, milkweed, horsetail, goldenrod, and a variety of grasses. These plants are the foundation of the ecosystem because their natural characteristics make them an important base layer for a wider variety of species. For example, goldenrod and the other plants in its family grow tall and densely, creating shelter habitat for small mammals.

UNIT 7 – WOLCOTT POND

An electrofishing survey conducted in October 2018 yielded yellow perch, pumpkinseed sunfish, rock bass, and brown bullheads as well as a few smallmouth and largemouth bass. These species are commonly found in lakes and ponds like Wolcott Pond, which is shallow, yet deep enough in places for temperatures to vary from cool to tepid. The pond has muck and gravel bottoms, alternately clear and weedy, that support fish such as yellow perch. Pumpkinseed sunfish and rock bass are panfish, which prefer warm waters. Brown bullheads thrive in ponds, lakes, and low-velocity streams with little oxygen and sediment substrate. Largemouth bass and smallmouth bass start feeding from the edge of the water and move towards deeper waters.



Electrofishing reveals mixed species at Wolcott Pond

Recommendations for the Future Protection of the Wolcott Pond Watershed

In accordance with its mission to protect and conserve natural, scenic, and working landscapes in the headwaters of the Winooski, Lamoille, and Black Rivers, the NRLT trustees recommend the following actions in the Wolcott Pond watershed:

1. Reach out to the remaining 20 landowners in the watershed to promote additional conservation of private wild and undeveloped land.
2. Work with partners such as the Friends of Wolcott Pond, the Town of Wolcott, and the Vermont Department of Fish and Wildlife to protect wild and working landscapes in the watershed.
3. Prioritize conservation of the remaining unprotected shoreline on Wolcott Pond.
4. Provide data to state botanists to add native pink azalea (*Rhododendron prinophyllum*) and any other rare or endangered plants and animals to the state's Natural Heritage Inventory.
5. Promote Wolcott Pond as a scientific research site, especially with respect to changes over time in the environment and its populations of living things.



Moose (*Alces alces*) (Sterling College game camera, November 2018)

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Eastern coyote (*Canis latrans*) (Sterling College game camera, October, 2018)

Appendix A: History of Wolcott, Vermont

Excerpts from the *Gazetteer of Lamoille Country* provide a picture of Wolcott's early landscape, including the Lamoille River watershed, as well as its agricultural industries:

"In surface, Wolcott is somewhat hilly and uneven, though it possesses no mountains. The soil is usually of a good quality and produces fine crops of the grains and grasses indigenous to the latitude, while the rich pasturage of its many hill slopes afford sustenance to many herds of cattle. Many beautiful views are afforded throughout the town, the most accessible of which being from the cemetery near Wolcott village, where one may obtain a sweep of the fine country of the Lamoille valley, through Morrystown, Hyde Park and Johnson, to the mountains, and south into Washington county. Near the vicinity of A. H. Keeler's, on road 8, is a fine view of the country south, west and north, to Canada, New York, and as far south as Camel's Hump, including the sublime profile of Mt. Mansfield, may be obtained.

The Lamoille river forms the principal water-course, flowing across the town from east to west, about a mile from the Elmore line. Its principal tributaries are Wild branch and Pond brook, from the north, and Elmore brook from the south, though there are a number of streams of minor importance. Numerous mill privileges are afforded, many of which are utilized. Several small ponds are found, the largest of which are Wolcott and Akins pond, near the eastern line, and Peach pond on the western line.

The rocks that enter into the geological structure of the township are of the talcose schist formation, with a narrow bed of clay slate in the eastern part. No minerals of importance, except copper, have been discovered. About six years ago this useful metal was discovered near the western line of the town. A mining company was organized soon after, composed of Canadian gentlemen, and though the ore is said to have yielded a good percentage, nothing has been done towards the development of the mines for several years. The vein extends south to the river, underlying the farm of C.C. Twiss, and

it is said to be only a question of time when this section will be reckoned one of the richest copper producing districts in the State.

H.B. Bundy's flouring-mill, located on the Lamoille river, is operated by four turbine water-wheels, and is supplied with five runs of stones. The building, a two story structure 42 by 52 feet, with a basement, was erected in 1878, upon the site of a mill destroyed by fire the year previous. Mr. Bundy grinds about 30,000 bushels of custom grain per year, in addition to 6,000 bushels of wheat and 20,000 bushels of corn for the trade.

C.H. Reed's saw-mill, located on road 40, is operated by water-power, employs twenty-five men, and cuts about 1,500,000 feet of lumber per year.

Joel R. Parker's saw-mill, located on road 18, corner rr, is operated by water-power, is furnished with a circular saw, and cuts 250,000 feet of lumber per year. The first mill on this site was built by Calvin Graves about forty-five years ago. The present mill was erected in 1853. An upright saw was used until 1872, when a circular saw was introduced.

E. Guyer's saw-mill, located on road 33, was originally built by Amos Walbridge, in 1833, who operated it for about eight years, when it passed into the hands of Hezekiah Guyer and Gilbert Noyes. In 1851, Mr. Guyer purchased the whole interest and retained the property until 1864, when he sold it to his son, Earle, the present proprietor, who remodeled the mill and instituted many improvements. He employs eight men and manufactures 900,000 feet of lumber per annum.

W.W. Cate's saw-mill, located at Wolcott village, was built in 1879. Mr. Cate employs eight men and manufactures about 1,000,000 feet of lumber per annum.

The Wolcott Steam Mill Co.'s saw-mill, located on road 41, was originally built in 1881. About three weeks after business was commenced the buildings were destroyed by fire. The present mill was immediately commenced, and was in operating

order by the 25th of May of that year. The mill contains one band saw, jointing and edging saws, planing and matching machinery, etc., operated by a forty horse-power engine, having the capacity for cutting 18,000 feet of lumber per day. The firm employs about fifteen men.

D.N. Boynton's saw-mill, located at North Wolcott, employs about twelve men and has the capacity for manufacturing 1,000,000 feet of lumber per annum.

C.C. Fisher's refrigerator and cold storage buildings, located on road 40, have the capacity for storing several tons of poultry. Charles E. Clark's carriage manufactory, located on road 38, was established November 1, 1882. Mr. Clark manufactures all kinds of carriages, wagons and sleighs, and does a general repairing and blacksmith business."

Appendix B: Steve Young's Thoughts and Recollections on Wolcott Pond

"My first recollection of Wolcott Pond was in about 1949 when I was 10 years old and went fishing with my friend Gerold Ellsworth. The end of the western bay of the pond was rough cow pasture with a path running down it to the shore. The owner of the farm, whose buildings were on the other side of East Hill Road, was Ben McKearney. He kept a few old rowboats which you could hire for 25 cents. As I recall, you paid your quarter and obtained a pair of oars, which you carried across the pasture and returned when you left.

At that time, beavers were just returning to northern Vermont. They had probably been trapped out some 200 years earlier, before the actual settlement of the land by farmers. Without beavers, the pond level was controlled by a natural dam, and it was probably pretty stable for well over a century. The water level was several feet lower than it is currently. If you look in the shallows at the end of the eastern bay, you can see the stumps of trees, probably spruce, that grew in what would have been a swamp. Beaver dams raised the water level at least a couple of feet and caused it to fluctuate more, so the forested area became shallow pond edge and wetlands, as it is today.

At many locations near the north shore of the pond—and probably elsewhere—the remains of large tree stumps are as much as four feet in diameter or more. I was first aware of these stumps in the 1950s, and they have changed very little in the ensuing 70 years. Some of them appear to have been scorched by fire. I've never seen any signs of fallen logs associated with the stumps, so I'm guessing that the trees were cut for timber,

probably well back into the 19th century. It seems likely that the trees were mostly white pine. Hemlocks, which are common along the pond shores today, would only have been harvested for their bark, with the trunks left to rot slowly. In some cases, the wood of the stumps is well enough preserved that it could be identified.

Most of the land around the pond has apparently always been forested. Much of it is steep and ledgy, unsuitable for mowings or pasture. In the days when hay was harvested by hand with a scythe, fields could be much smaller than those of today.

A few places on our land with piles of stones indicate that patches of now forested land were once cleared and improved. The higher, steeper land is good habitat for sugar maples. The remains of an old sugar house sit on our land, and there were probably others within the drainage. Many of the sugar places were logged off during hard times. The maple wood was used to make, among other things, shoe lasts—there was once a thriving shoe-making industry in Wolcott Village.

Along the pond shores, trees often fell into the water as they do today. Waterlogged trees decay very slowly; you can find tree trunks in shallow water that have probably been there for centuries. Even if the tree is only partially submerged, it rots very slowly and provides a habitat for a number of characteristic plants, such as sundews. [Neighboring landowner] Sara Shevenell recalls being frightened by a snag sticking above the water when she was a child, some seventy years ago. It has changed little. (I confess to breaking off a piece of it many years ago.)

At some time, presumably in the 19th century, a pent road was established leading to the north shore of the pond. A pent road is a public road which can be temporarily closed with a barway, so that the farmer whose land the road runs through doesn't have to run fencing along both road sides. It's not clear why this pent road was wanted. It was, until the fishing access road was built in about 1970, the only public road access to the pond. One suggestion I have heard is that it allowed residents in the farms farther out Keeler Pond Road to access Wolcott Pond for cutting ice. I've also heard that there may have been an ice house near the current fishing access area, but I have never seen any evidence for this.

In about 1910, Dr. George Rublee, a medical doctor who lived and practiced in Maine but who had ties to Vermont, purchased a small tract of land on the point which separates the eastern bay from the pond's main body and commands a view of most of the lake. The land could be approached by a right-of-way over a logging road used by Clarence Lanphear, from whom the property was purchased. Dr. Rublee built a two-story wilderness camp on the site. Over the next hundred plus years, four generations of his family used the camp. It was purchased by us a few years ago and reunited with our land.

In about 1950, my father got a phone call from an elderly local farmer from whom he had bought Christmas trees over the years. The land taxes on his property had not been paid for several years, and the Town of Wolcott was about to take over the farm. At that time the land was far back on a dirt road; most of the other farms along the road were long abandoned, and the land was poor and infertile. Rather than have the town take over the land, the farmer offered it to my father for what was owed in back taxes. The figure was something like \$800. That was still quite a bit of money for a young man with a family to support, so my father enlisted the help of a couple of his brothers and bought the farm, which included a dilapidated house and a falling-down barn. It also included some 1,200 to 1,500 feet of shoreline on Wolcott Pond, on both sides of the Rublee camp.

My father came home one day and assessed me, my brother, and a couple of cousins who visited regularly \$5 each for our share in a rowboat, for which he had paid \$35. That was the first we heard about the purchase of the 'Tom Place,' as we have always called it. (Tom Nolan had lived on the farm for many years.) There's a lot of history regarding the Tom Place, but it's mostly not relevant to the pond. In any event, we soon built a primitive swimming raft in the east bay, and we explored the pond in our new rowboat. The boat itself is long gone—it may well be lying in the shallow water at the far end of the east bay along with several other craft. But I still have one of the oars, hewn by hand out of a spruce log. After a hot work day planting balsam seedlings for future Christmas trees, the pond was a great place in which to cool off and clean up. But we'd be hot and sweaty again by the time we climbed back up the hill to the place where we parked the truck.

My father and his friend George King later bought the old pasture at McKearney's boat livery. Soon thereafter, they were approached by the State of Vermont, which wanted to purchase property on the pond and establish a fishing access area as well as build a dam. There was some talk that the natural dam was unstable, and so might allow flood waters to hit Wolcott village—a modern equivalent of Runaway Pond in Glover. I've always been more than a bit skeptical of that. Anyway, the State purchased quite a bit of land on the western end of the pond, built a dam, and created the current fishing access area, which allows trailer launched boats to be used on the pond. The beavers immediately set to work upstream of the new dam, and they generally keep the water level of the pond at least two feet higher than the dam spillway.

My wife, Jan, and I bought the Tom Place, minus the original house and small hayfield, from my parents in 1971. Shortly thereafter, we built a rustic camp. Someone else had bought a small shore lot from the same Clarence Lanphear who sold Dr. Rublee his lot in 1910. They also built a camp, bringing the total to three. Some years later another camp was built on the south shore, so there are four camps on the shore—about one per mile of frontage.

Sara Shevenell was the last generation of the Rublee camp owners to spend much time there, but she lives in England and found it increasingly difficult to travel to Vermont, live in a very rustic—and often chilly—camp, and maintain the building and access road. We reached a friendly agreement to purchase the property in 2018. So, a hundred and ten years after the original Rublee purchase, the land was reunited. This created an approximately 2,500-foot continuous shoreline in our ownership, all of which will be preserved by

conservation easements. They will be combined with a short stretch of shoreline and a major wetland for which our son and his family are donating an easement. Another easement, donated to the Vermont Land Trust by my brother and sister-in-law along the south shore, completes most of the shoreline protection of the pond’s eastern portion. Much of the remainder is in State of Vermont ownership.”

Appendix C: Sarah Shevenell’s Rublee Camp memoir

Shevenell’s 2016 memoir contains stories and insights from five generations enjoying life at Rublee camp on Wolcott Pond over more than 100 years’ time, as recorded in their camp journals. Some excerpts:

“Building a camp is not unusual in the United States, particularly in northern New England. Glaciation left the northernmost states dotted with lakes and small ponds, while changes in the largely agricultural economy during the 20th century meant that land was both abundant and relatively inexpensive. As a consequence, all but the most inaccessible or protected lakes became ringed with a variety of structures. Some are grand, some are simple, but they are known almost universally as ‘camps.’”

“Camp is a place to go to get away from cities, to break the routine of working life; a place to rest, to play, to swim, to fish, to hunt, to read, write or paint. Above all, it is a place for family to gather, a place where memories are made, traditions established, and stories are told.”

Before modern refrigeration came to the camp in the 1950s, the family used an icebox.

“The ice blocks were approximately 18 inches square, impossible to handle without a pair of hefty ice tongs. One of the first arrival tasks was to go to Wolcott to the ice house. It was in the middle of the village, a large barnlike structure with enormous doors. They rumbled open to reveal, even in the middle of July, hundreds of blocks of ice stored in sawdust.”

“When my grandparents built the camp, the land was a thicket of waist-high spruce and balsam. [Grandmother] Florence talked about ‘fighting through.’ A clearing for the camp brought light from all directions, all day. . . . [F]orty years later, during my 1950s childhood, the spruce and balsam ‘thicket’ had grown into mature, towering giants of trees. There was a clear understory through which light streamed into camp.”



Hidden home in the hardwood forest

In 1978 when fallen spruce was a danger, the land sustained a devastating clearcut by a logger who took only valuable logs and left mountains of slash, according to Shevenell. Today, a mature forest is again visible on the lot.

“There is a second very different but equally compelling fishing spot—Bear Swamp, where a cold mountain stream tumbles off Scribner’s Hill into a vast insect bog at the edge of the old Colgrove Farm pastures. After a rain, a trip to Bear

Swamp was always on the agenda. First of all, out comes the bug spray, then hip-high waders, a wicker creel to sling on your belt alongside a tin worm box. . . . [T]he catch was indescribably sweet, pan-sized brown trout, everyone’s favourite.”

Log entries from the late 1980s and in subsequent years note breeding pairs of loons, although they do not always indicate that a chick was hatched or successfully reared.

“The eerie call penetrating the darkness is unmistakable as a loon shrieks her warning. Nothing in the world sounds like it—I listen for more [of] the high-pitched yodel that sounds crazed, almost hysterical. It echoes off the rocky high ground on the eastern shore creating sound ripples around the pond in an otherwise still night—it’s a defining sound of camp—familiar, haunting and reassuring.”

“The beavers have lived in Wolcott Pond for as long as I can remember. There are three or four major ‘lodges’ which provide shelter and a place to raise young. . . . Beaver activity varies from year to year as the population rises or falls. But the most astonishing bit of beaver engineering is the dam across the outlet controlling the water level in the pond. The level varies each year as much as 18

inches higher or lower, depending on the resident population and consequent need to access trees on the shoreline.”

Judy Weymouth, a friend of Sarah’s, recounts the diversity of species seen around the pond: moose, deer, bear, mink along the shorelines, singing coyotes in the distance, the carnivorous boreal bog plants known as sundew growing on rotting trees and swampy hummocks, and yellow pond lilies gradually replaced by white pond lilies. Writes Weymouth:

“The varied landscape of the pond area has always given me, the ‘birdwatcher,’ many thrills: open fields, spruce swamps, mixed hardwood-softwood forest, shallow marshy edges, an unspoiled pond surrounded by ridges and hollows. Each with its own little ‘microclimate,’ and in those microclimates, a stunning complex of fauna and flora. A walk in the woods with the Hermit thrush and the veery song . . . is darting through the forest just out of sight . . . Herons and bitterns wade the shallows, rails skulk through tall grasses, osprey and even the occasional bald eagle fish the open water. . . . The boreal warblers prowl the treetops. Mallards, wood ducks, ring-necked ducks, Canada geese have all raised their young on the pond. . . many species of hawks.”

Appendix D: Wolcott Pond Plant Species List, July 2018 (partial)

Latin Name	Common Name	Latin Name	Common Name
<i>Acorus calamus</i>	Sweet flag	<i>Carex rostrata</i>	Beaked sedge
<i>Alnus rugosa</i>	Speckled alder	<i>Carex stricta</i>	Tussock sedge
<i>Aster puniceus</i>	Purple-stemmed aster	<i>Ceratophyllum demersum</i>	Coontail
<i>Bidens cernua</i>	Nodding bur marigold	<i>Chamaedaphne calyculata</i>	Leatherleaf
<i>Calamagrostis canadensis</i>	Bluejoint grass	<i>Chelone glabra</i>	White turtlehead
<i>Calla palustris</i>	Water arum	<i>Chimaphila umbellata</i>	Pipsissewa
<i>Carex crinita</i>	Drooping sedge	<i>Cicuta bulbifera</i>	Bulblet-bearing water hemlock
<i>Carex lasiocarpa</i>	Woolly-fruited sedge	<i>Cladium mariscoides</i>	Twig rush
		<i>Corylus cornuta</i>	Beaked hazelnut

<i>Drosera rotundifolia</i>	Round-leaved sundew
<i>Dulichium arundinaceum</i>	Three-way sedge
<i>Equisetum fluviatile</i>	Water horsetail
<i>Eriocaulon aquaticum</i>	Pipewort
<i>Eupatorium maculatum</i>	Spotted joe-pye weed
<i>Filipendula ulmaria</i>	Meadowsweet/ meadowwort
<i>Galium palustre</i>	Common marsh bedstraw
<i>Geum rivale</i>	Water avens
<i>Glyceria striata</i>	Fowl mannagrass
<i>Hypericum boreale/mutilum</i>	Dwarf/boreal St. Johns-wort
<i>Ilex mucronata</i>	Mountain holly
<i>Ilex verticillata</i>	Common winterberry
<i>Impatiens capensis</i>	Jewelweed
<i>Iris species</i>	Iris
<i>Isoetes macrospora</i>	Big-spore quillwort
<i>Lemna minor</i>	Lesser duckweed
<i>Linnaea borealis</i>	Twinflower
<i>Lycopus uniflorus</i>	Northern bugleweed
<i>Lysimachia terrestris</i>	Swamp candles
<i>Myrica gale</i>	Sweet gale
<i>Nuphar variegata</i>	Variegated yellow pond lily
<i>Nymphaea odorata</i>	White pond lily

<i>Osmunda cinnamomea</i>	Cinnamon fern
<i>Osmunda regalis</i>	Royal fern
<i>Potamogeton natans</i>	Floating pondweed
<i>Rhododendron prinophyllum</i>	Early azalea
<i>Rosa palustris</i>	Swamp rose
<i>Sagittaria latifolia</i>	Broadleaf arrowhead
<i>Salix Bebbiana</i>	Bebb's willow
<i>Sambucus nigra</i>	Black elderberry
<i>Scirpus cyperinus</i>	Blackgreen bulrush
<i>Scirpus validus</i>	Softstem bulrush
<i>Scutellaria galericulata</i>	Marsh skullcap
<i>Sium suave</i>	Water parsnip
<i>Solidago odora</i>	Sweet goldenrod
<i>Sparganium angustifolium</i>	Lesser bur reed
<i>Sphagnum species</i>	Sphagnum moss
<i>Spiraea alba</i>	White meadowsweet
<i>Spiraea tomentosa</i>	Steeplebush/pink spirea
<i>Thelypteris palustris</i>	Marsh fern
<i>Tracaulon sagittatum</i>	Arrow-leaved tearthumb
<i>Triadenum fraseri</i>	Marsh St. John's-wort
<i>Typha latifolia</i>	Cattail
<i>Vaccinium myrtilloides</i>	Velvetleaf blueberries
<i>Viburnum lentago</i>	Nannyberry

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Landowner and NRLT Trustee Steve Young's love for and knowledge of the Wolcott Pond landscape over time has been invaluable in helping the board understand the importance of protecting it and its watershed. Steve's review of and knowledge of species in the natural communities also vastly enriched the report. Trustee Laurie Gullion coordinated the final phase of the report as trustees finalized their recommendations for conservation action. Trustee Alex Pelz applied his artistic eye to design an eminently attractive report.

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