A Natural History of the Ridge Conservation Area

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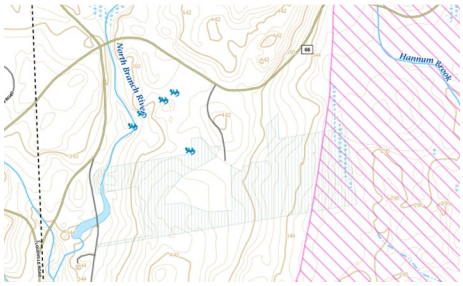
This 36.5 acre property was acquired as conservation land in 2005, not through strategic planning, but as a condition of a cluster subdivision. That's seldom the best way to gain new conservation land, but fortunately this property—although not a heart-stopper—is in good condition and has qualities that make it, from a conservation-perspective, fairly interesting:

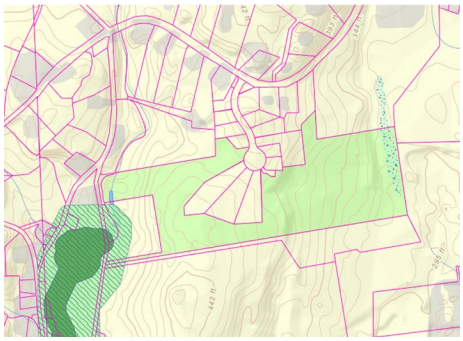
- A portion of it lies within a Zone II Aquifer Protection Zone;
- Another section is within Core Aquatic Habitat;
- It contains a vernal pool;
- It includes a short stretch along the Manhan River.

In addition, from a management and stewardship perspective, it has few invasive plant problems and its new trails, although disconnected and oddly laid out, are in good condition.

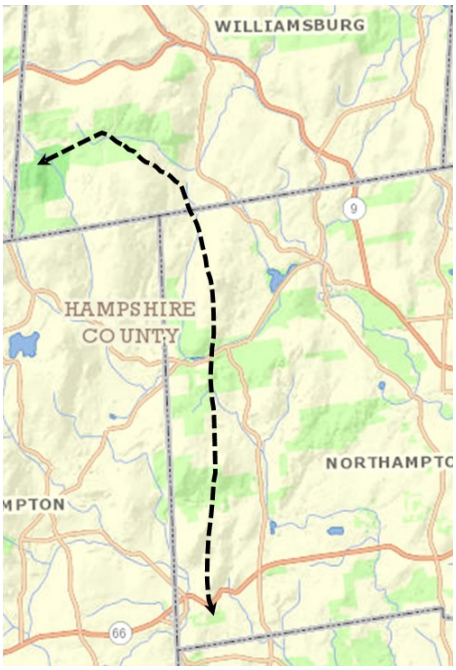
And here's something else that's interesting: it is part of a much larger forested block and from here, you could walk north for more than five miles through the woods and only cross two roads before reaching the Williamsburg line, where you could hike another two miles to the Brewer Brook Wildlife Management Area.



The eastern edge of the conservation area lies within a Zone II Aquifer Protection Area. *Map data from MA GIS.*

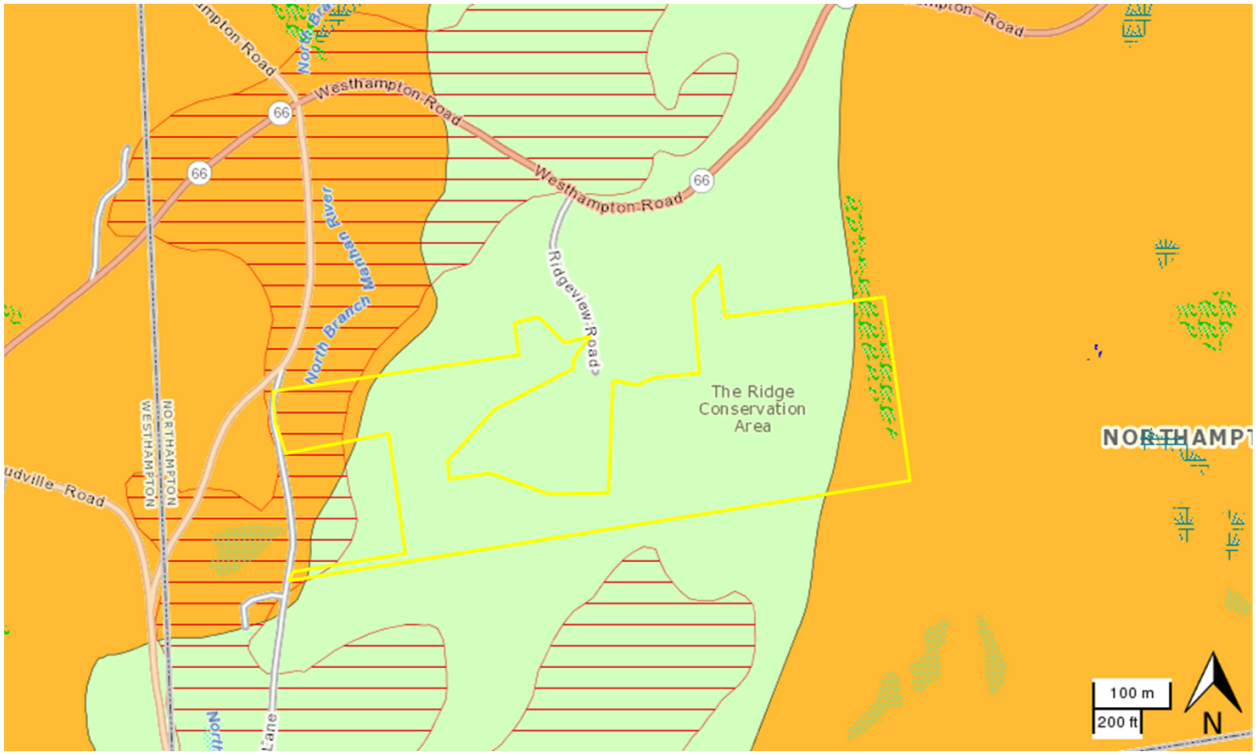


A small portion on the western boundary along the Manhan River is within MA NHESP's Core Aquatic Habitat.

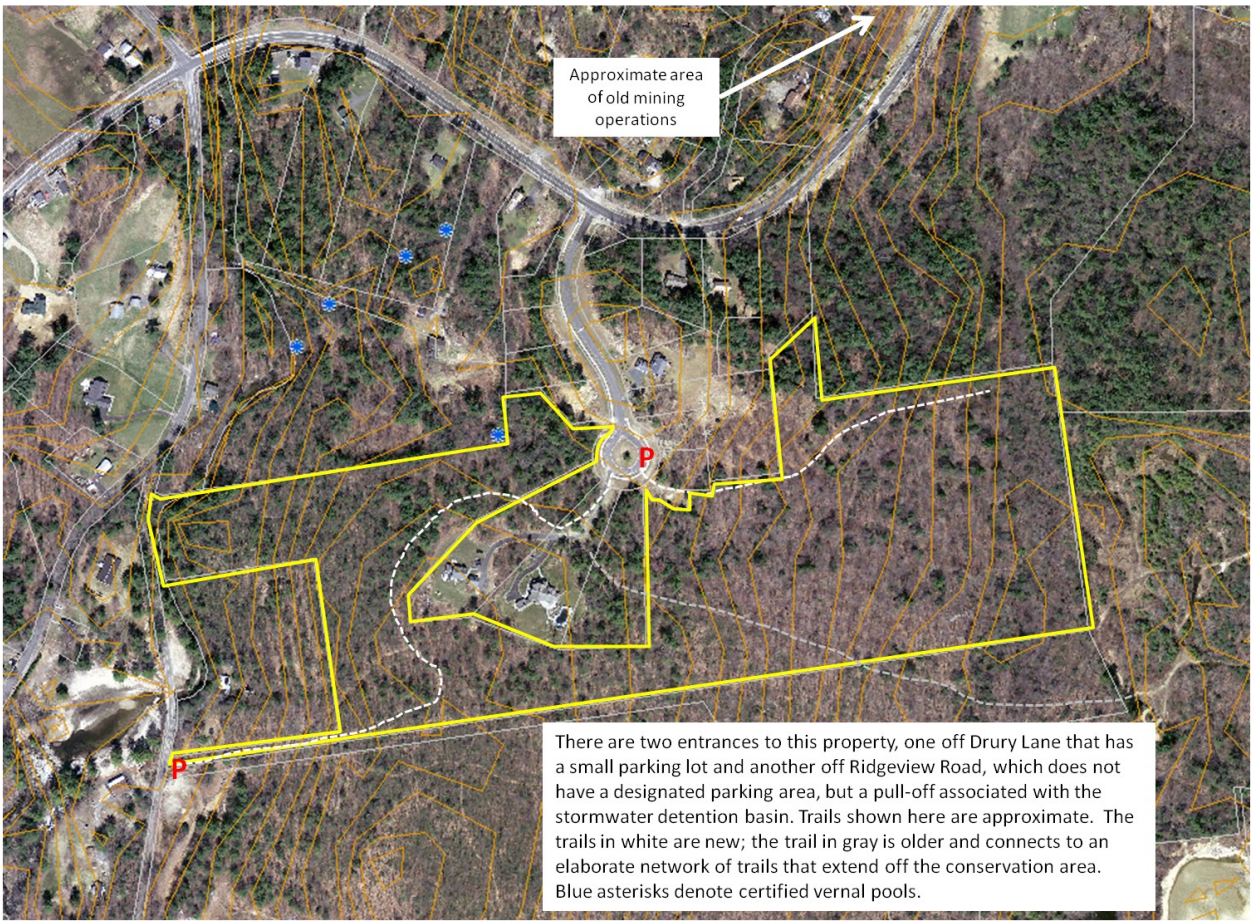


Introduction

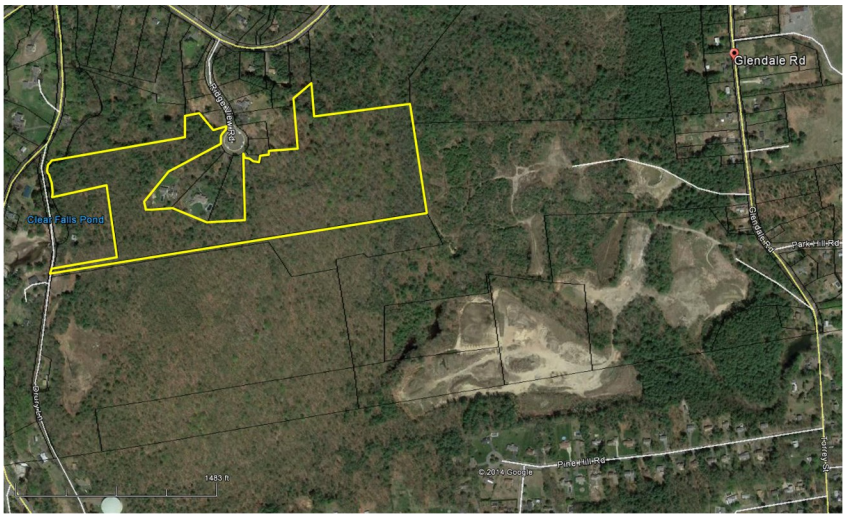
The Ridge Conservation Area, in spite of its current name, it is not located on a ridge, but on the side slopes of one of the southernmost knobs in the Mineral Hills. These hills are the erosional remnants of once-great mountains that formed roughly 450 million years ago and are composed of metamorphic rocks with igneous intrusions. Within the conservation area, bedrock is exposed in only two places—along Ridge View Road where there is a small outcrop and along the Manhan River, where there are more extensive outcrops. All the other bedrock on the property is hidden under glacial till, and on the lowest slopes, the till itself has been covered by coarse, water-sorted sediments. These sediments were deposited 15,000-12,400 years ago, during the time of glacial Lake Hitchcock, when glacially-charged rivers and streams deposited vast amounts of sand and gravel around this knob and created extensive outwash plains that stretched from here to Florence and into Easthampton.



Red lines show bedrock close to the surface, light green is glacial till, orange is glacial outwash. *Data from MA GIS.*



During the last 10,000 years, the Manhan River has carried away most of the sandy deposits that lay on the west side of the property. On the east side, the sand has also been "carried away," but much more recently. Beginning in the 1950s, several sand and gravel pits got underway in Northampton's southwestern corner. In the 1960s, additional small gravel pits opened on the land just east of the conservation area and during the 1970s and 80s, they were significantly expanded. To-



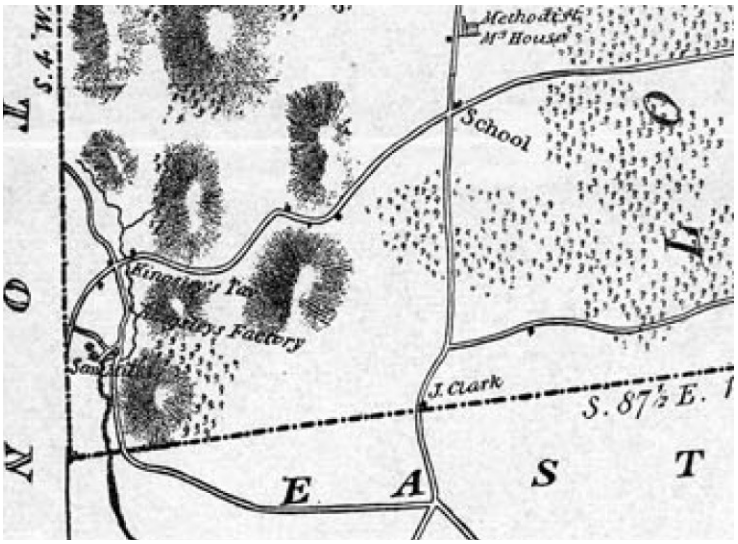
Extensive gravel pits are located to the east and southeast of the conservation area in the former glacial outwash.

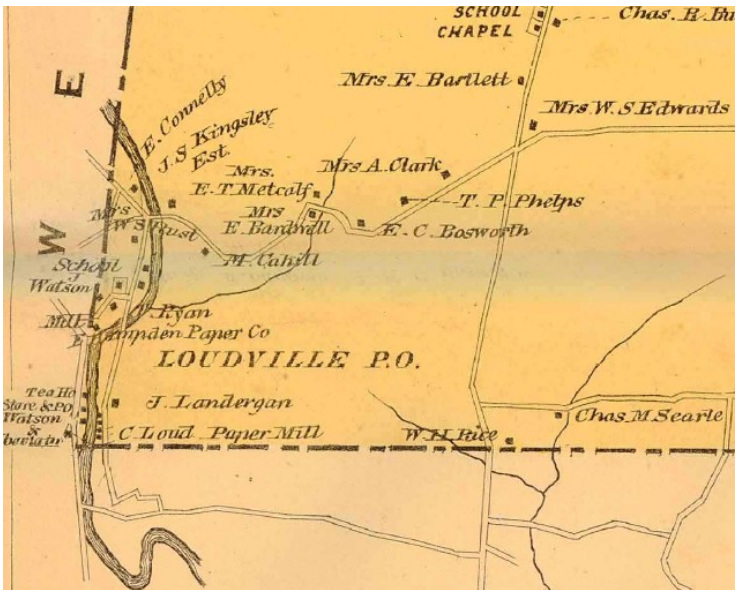
day most of the mining on the adjacent land has ceased, and large portions of the landscape have begun to grow back into wet meadows and brush.

The beautiful orchid known as rose pogonia grows on the wet soils of the former gravel pits not far from the conservation area.

Human History

Even though it lies more than four miles from the center of Northampton, this part of town attracted attention early on in the City's history. In 1685, Robert Lyman of Northampton discovered lead in the form of galena along an outcrop near the Manhan River. The site lay just a few hundred yards downstream from the current conservation area, and for the next two centuries various mining companies worked the claim. Other nearby sites were also explored for minerals, and although none of them were very successful, the region became known as the Mineral Hills.





By the early 19th century this area was not only a mining district, but also a factory village. The power of the Manhan was tapped and by 1831, the village supported a sawmill, a factory, tenant housing and a tavern. The village eventually became known as Loudville (named for the Loud family) and after the last mining operation failed in 1865, it con-

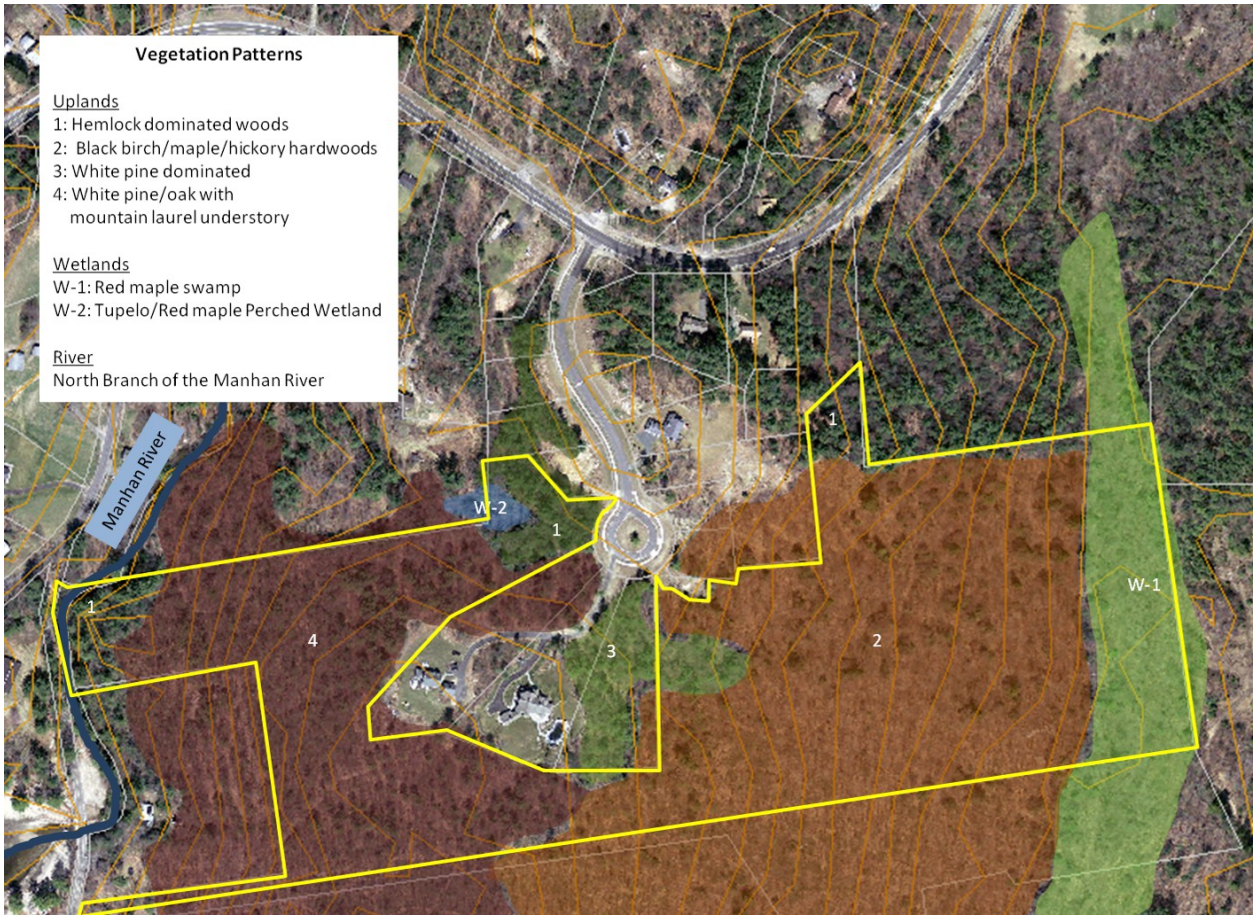
The 1831 map (above) and the 1884 map (below) show big changes in Loudville during the industrial revolution.

tinued to bustle. By 1884, it boasted three mills, two of which were producing paper, plus a school and post office. But, not unlike Leeds and Baystate, its industries folded in the early 1900s when steam and electricity replaced the need for water-power. The village, however, continued to sputter along, finally losing its post office in the 1950s and its local grocery in the 1960s.

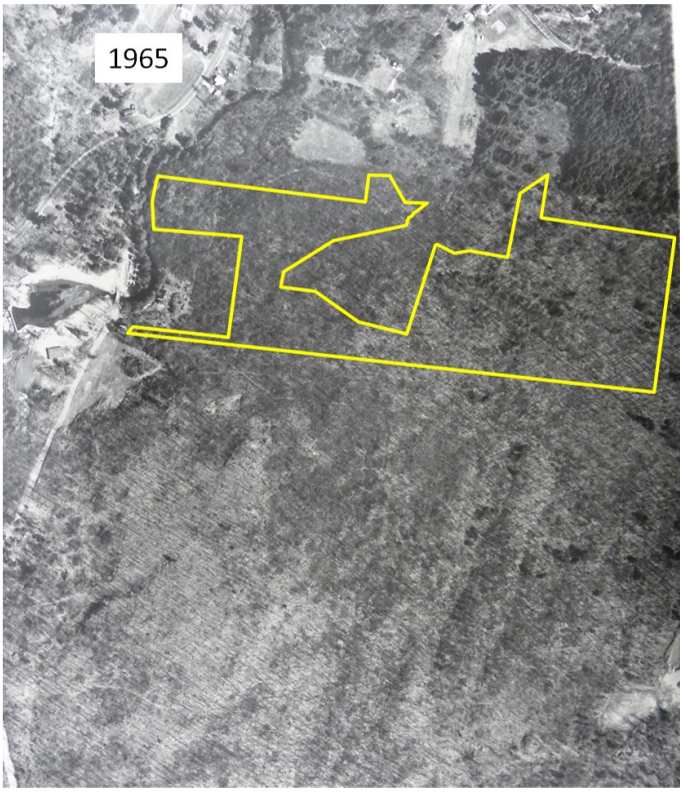
Vegetation Patterns

Like most of Northampton and Massachusetts, the land that now forms the conservation area was probably completely cleared by the early 1800s—partly to feed the nearby sawmills, partly to feed the home fires, and partly to create pasture for sheep and cows. Although no stonewalls were found on the property, old strands of wire fencing tell a history of pasture use.

Just when the land began to grow back into forest is unclear, but based on aerial photos from the 1950s and 60s, this block of land has been forested for decades. That said, it is hardly uniform.



Its drier, steeper western half is covered with oak, hemlock, and dense thickets of mountain laurel. Its wetter, more gently sloping eastern half is dominated by deciduous hardwoods and a few patches of hemlock and white pine.



Looking closer still, the land can be divided into six major plant communities (four upland and two wetland) and the newer trails intercept four of these communities. What follows is a tour of the property's vegetation patterns—from the trails and with a little bushwhacking.

Upland Forests-Wetter Eastern Slope

(Ridgeview Road entrance)

From Ridgeview Road, just past the stormwater detention basin, is the entry to one of the property's two new trails. From the top of the hill, it heads east, downslope, through a mixed forest of black birch, oak, hemlock, and red maple, with a scattering of black cherry and hickory. Patches of mountain laurel and maple-leaved viburnum are common in the shrub layer, and growing along the forest floor are broad carpets of hayscented fern, swaths of New York fern and clusters of Christmas fern. A variety of common woodland wildflowers can also be seen, including Indian cucumber root, star flower, whorled loosestrife, true solomon's seal, Virginia creeper, and false solomon's seal. In a couple places, the trail intercepts seepy

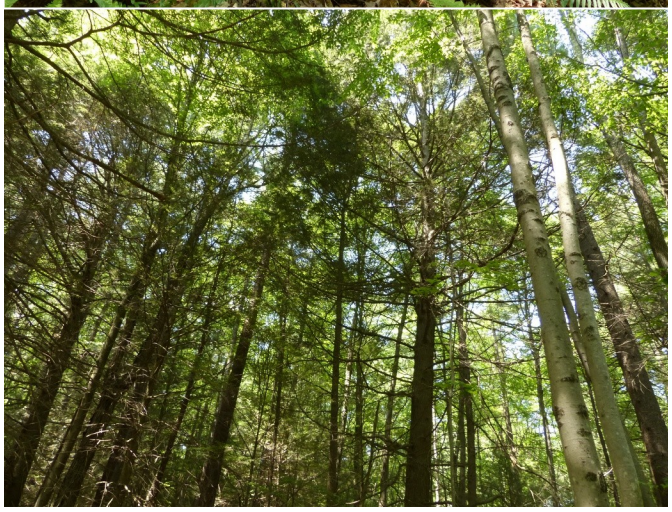
A swath of hayscented ferns covers the ground below a mixed hardwood-hemlock forest.

clearings, and then the vegetation shifts to a mix of wetland specialists, including cinnamon fern, interrupted fern, touch-me-not, soft rush (*Juncus effusus*), grasses and sedges.

The trail itself is one of the few places on the entire property where invasive non-native plants are found. A handful of young Asiatic bittersweet and multiflora rose bushes have established along its sunny border. A few other non-native plants have also seeded in, but none of them are species that invade into natural, undisturbed woods.

As the trail descends, it intercepts richer soils where sugar maple, beech and even a few tulip trees join the dominant mix of black birch and red maple. The variety of wildflowers also shifts to include wild oats, dwarf ginseng, red trillium and grape—all of them botanical indicators of sweeter soils.

An old fence post strung with barbed wire reveals the pasture history of this part of property.



Top photo: There is little understory beneath the dense stand of hemlock.

Middle Photo: Christmas fern is a common species at the conservation area.

Bottom Photo: Depending on where you are, the canopy is dominated by all hardwoods, a mix of hardwoods, white pine and hemlock, or pure stands of either hemlock or white pine.

At the toe of the slope, near the northeastern corner of the property, the trail suddenly, unexpectedly and bafflingly ends. To the left (north) is a large stand of dying hemlock (mostly off the property) and to the southeast (on the property's boundary), a red maple swamp. The swamp begins where the heavier till soils intercept the sandier glacial outwash deposits, which overlie a thin layer of glacial Lake Hitchcock clays.

Swamps are almost always interesting places to explore, and this is an attractive one, with mossy hummocks and luxuriant vegetation. In addition to red maple, the canopy includes elm, yellow birch, hemlock, and ash and the shrub layer has tangles of winterberry, small patches of mountain laurel and loads of spicebush. In terms of plants, this wetland is the most diverse habitat on the property, with a variety of ferns and wildflowers (sensitive fern, cinnamon fern, turtlehead, gold thread, marsh marigold, foamflower, hog peanut, halberd-leaved tearthumb, Virginia creeper, false nettle, hellebore, jack-in-the-pulpit, fringed loosestrife, swamp dewberry, poison ivy). The wetland also includes a few non-native plants--

Top Photo: The swamp at the property's eastern edge has small pools. The sphagnum hummocks might provide nesting habitat for four-toed salamanders.

Middle & Bottom Photos: Cut stumps and abundant resprouts document a logging job on the property during the last two decades.

A spicebush swallowtail lays eggs on a sassafras in the forest.

A view of the forest below the cul-de-sac.

multiflora rose, Japanese barberry, one Asiatic bittersweet and surprisingly, some moneywort. These are all, for now, in low numbers and could easily be yanked out.

From the wetland, the remaining section of woods (i.e. the south and east of the cul-de-sac) requires bushwhacking. This forest was logged during the last twenty five years, and in the aftermath of cutting, witch hazel and black birch have rebounded. The herb layer is highly variable; in some places there is al-

Just off the property, a network of trails connect to the gravel ponds to the east and are regularly used—and abused—by ATVs.

most no vegetation, in others, the ground is hidden by ferns. Christmas fern, New York fern and lady fern are the most common in the drier areas, while spinulose wood fern dominates the hillside seeps. Near the cul-de-sac is a stand of white pine and the remnants of a trail. This section of the trail was discontinued once the cul-de-sac was built, but following it downslope, it connects with trails that are actively used by ATVs and lead to the old sandpits off Glendale Road in one direction and to the trail off Drury Lane in the other.

<u>Upland Forests—Drier West Slope</u> ***(Drury Lane Entrance)***

Although you can continue bushwhacking over to the forest on the western slope, it is most easily seen and explored by the trail that begins on Drury Lane.

The trail from Drury Lane leads up a gentle slope, past thick mountain laurel and oak woods.

Beginning at the parking area, the vegetation around this spot is different than elsewhere on the property and supports a mix of species that do well in open, sunny, disturbed locations. Most of these are either native (big-toothed aspen, witch hazel, poison ivy, bracken) or non-native species that aren't too invasive (daisy fleabane, black locust.) There is, however, some Asiatic bittersweet growing here, as well as on barberry and one autumn olive.

American chestnut used to be a common component of this forest.

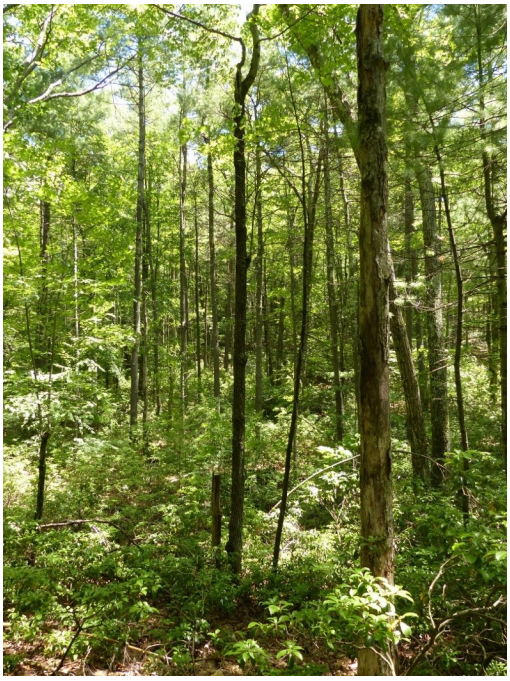
From here, the broad trail climbs up a gradual slope and through a forest of white pine, oaks, red maple and scattered sassafras. The shrub layer is abundant and dominated by mountain laurel. Witch hazel and maple-leaved viburnum are also common. In contrast, the understory vegetation is generally sparse, although a few big patches of wintergreen, whorled loosestrife and low-bush blueberries can be found.

Poke milkweed occurs occasionally in Northampton and grows along the trailside at this conservation area.

As the land levels off, the trail bears left at the intersection with an old wood road. To the west (on your left), the land is steep and overwhelmingly oak, with scattered pine, red maple and black birch and an understory dominated by mountain laurel.

The trail exits along a shared driveway--and the barking dog that belongs to a nearby home—and then continues a short distance to Ridgeview Road.

From here, it is possible to bushwhack back into the forest to visit the vernal pool, which is located a couple hundred feet in from the road and along the property's boundary. Located in a shallow bedrock depression, the pool is surrounded by tupelo and red maple and an understory of highbush blueberry, sheep laurel, chokeberry, and mountain laurel. Cinnamon fern is abundant and this is one of the few sites in Northampton for catbriar (*Smilax rotundifolia*), which is unusual to find in Northampton. It is a more southern and coastal species.



The view from the top of the rock outcrop near the Manhan River reveal a forest dominated by oak with a thick tangle of mountain laurel in the understory.

Views of the North Branch of the Manhan River (A, B, C), including Japanese knotweed along the banks (D). The riverbank also supports a relatively uncommon plant in Northampton called honewort (E), and the rocks and nearby shaded outcrops have polypody fern growing on them (F).

North Branch of the Manhan

The final and most interesting habitat is the short stretch of the Manhan River. Rich in history, it's also ecologically important—its highly-oxygenated waters are classified as a "cold water fishery" and falls within the state's Biomap Core Aquatic Habitat.

It's also very pretty. The bottom of the river is a mix of sand, gravel and boulders with bedrock outcrops and moss-covered banks bordering the hemlock-lined brook. Unfortunately there are also a few, small patches of Japanese knotweed growing on the banks. The population of this invasive is still small enough within the conservation area that it could be controlled, but further downstream, off the conservation area, it has taken over the riparian corridor.

Wildlife

This conservation area provides habitat for a wide range of animals, from common species like deer to much rarer ones, like box turtles. It also provides important habitat for amphibians and vernal pool specialists. Its single vernal pool is breeding habitat for wood frogs and spotted salamanders and it is more valuable because of its proximity to four other certified pools. The river habitat also enhances the property's value to wildlife, as does its connectivity to other undeveloped land.

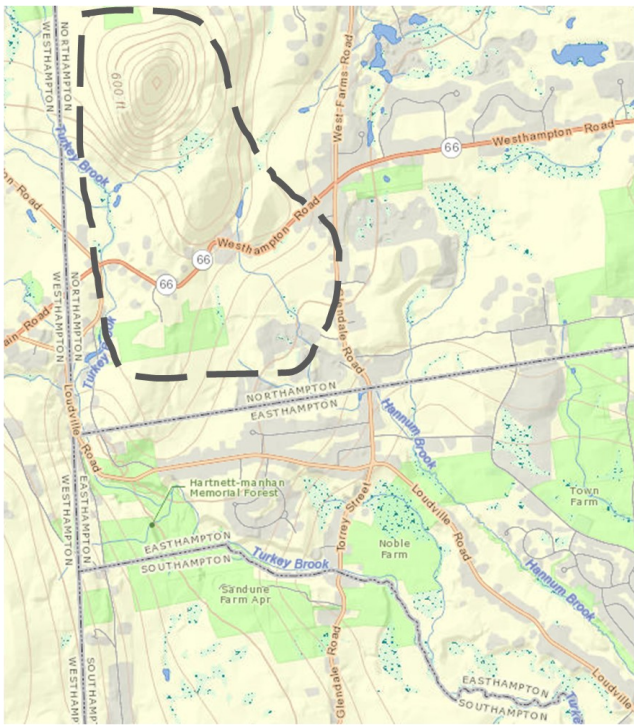
A box turtle lays her eggs in the gravels of a nearby property.

A male wood frog in a breeding pool.

American toads live in the conservation area.

Recommendations

As the southern bookend to the jigsaw puzzle of protected land along the Mineral Hills, this parcel adds to the overall diversity of Northampton's protected lands. Its value to wildlife—and people—will increase if more of the adjacent land can be protected, especially the sand barren habitat to the east, Turkey Hill to the north and more land along the North Branch of the Manhan River. In addition, it is recommended to:



The conservation area in context to other protected land in Westhampton, Easthampton and other parcels in Northampton. The higher knob due north is currently unprotected and one of the most interesting areas ecologically, with impressive outcrops, talus slopes, hickory-hop hornbeam forests, and richer oak woods. At least three state-listed species are known from this unprotected hilltop, which also offers impressive views and an existing network of trails.

1. Control the Japanese knotweed along the Manhan River and the other invasive species along the trails (Asiatic bittersweet) and in the red maple swamp (multiflora rose, Japanese barberry, moneywort)

2. Re-route the trail away from the houses and create a connecting loop and trail to the Manhan River.

3. Organize a field walk to introduce residents to the natural and human history of this seldom visited conservation area.

4. Monitor for Japanese stilt grass, which has been found within ¼ mile of the conservation area.

Stilt grass, in this case growing along Bassett Brook in Easthampton (2014).

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