A Natural History of the Brookwood Marsh Greenway

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Brookwood Marsh

BROOKWOOD MARSH GREENWAY
& AQUIFER PROTECTION AREA

Were it not for the wetlands associated with this conservation area, this would be one of the least valuable and most abused properties within the City's conservation holdings. Even now, forty years after the last bulldozer left, the 15-acres that make up the core parcel still appear altered and beat-up, with filled-in wetlands, rocks in jumbled piles, mounds of dirt, and a powerline cutting along one edge. What's more, the scruffy vegetation—including lots of invasives-- that has since grown up doesn't make it a very inviting patch of woods and the configuration of the conservation area is such that you're always in view of homes. When all of these factors are combined, it's not surprising that only few of the neighbors have gotten involved in the property's management since the City took it over as conservation land in 1990.

One of many mounds of fill and topsoil that were pushed around the property and then abandoned. The powerline transmission pole is in the background, while Asiatic bittersweet and Morrow's honeysuckle are visible in the foreground.

On the other hand, what makes this conservation area interesting—and important--are not the strips of land between Florence Road, Ellington Road and Crestview Avenue, but the 20-acre wetland complex to the south. Two acres of this wetland were included in the original 1990 acquisition, and since then, another 5 acre parcel was donated. Aside from its important ecological value, this wetland complex has a complicated geologic history and a fascinating human story—and so far, both are still unfamiliar to most Northampton residents.

From the top of the mound in the photo above, you can look south over the vast wetland, seen here in the fall 2014.

What follows is the natural history story of this conservation area, along with an update on the changes since 1993.

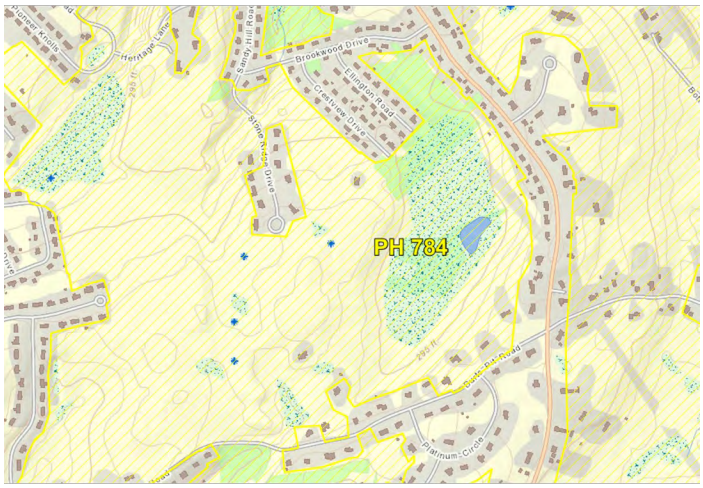
Since 1993

Since examining this property twenty years ago, several important changes—some positive, others negative--have taken place at the Brookwood Marsh Conservation & Aquifer Protection Area.

The original property taken in lieu of back taxes wraps around the development, while the new donation is located further south. The bright blue asterisks further west are certified vernal pools.

On the positive side, thanks to a donation of land, this conservation area is now five acres bigger and even more important, the donation includes the core of Northampton's only bog --the most ecologically significant part of the adjacent wetland complex. Although the parcel is not contiguous with the original 15 acres and has no public access, it supports plants and animals that are found nowhere else in Northampton and a few that are also regionally uncommon.

In addition, during the last two decades, field work by others has revealed the importance of the adjacent western woodlands for wildlife. A private study on the population size and movements of box turtles in the vicinity was conducted, and three vernal pools were certified. Because of these findings—along with the 1993 discoveries of unusual species in the bog—the entire conservation area and much of the surrounding land now fall within "Estimated Habitat for Rare Species."



The entire conservation area, as well as land to the east and west, are within "Priority Habitat for a Rare Species", as created and defined by MA Natural Heritage & Endangered Species Program. *Data from MA GIS.*

Another positive change was the restoration of an acre of wetland habitat at the end of Ellington Road. This northern edge of the wetland had been seriously degraded during the 1970s by the subdivision's developer. In 1999, with the help of a

USFWS grant, roughly 1,400 tons of rock and fill were removed and the wetland was returned to a mix of marsh and open water.

The wetland area, as seen in 1999 prior to restoration, and in 2001, following the removal of rocks and fill and planting with native wetland vegetation. *From 2001 report submitted by New England Environmental to the City of Northampton, and available at: http://city.northampton.ma.us:8080/weblink8/0/doc/485927/Electronic.aspx*

In conjunction with that project, the city came up with a long-term solution to alleviate the excessive flooding caused by beaver activity in the marsh. Beavers had moved into the wetland in the early 1990s and their dam, built near the outlet at the end of Ellington Road, had raised both surface water and groundwater levels. The home next to the wetland, which had always suffered from high groundwater problems, began to experience even more serious flooding. In 1992, the City DPW had tried to solve the problem by installing a pipe through the beaver dam. This lowered the pond level, but only briefly because the beavers kept plugging the pipe with vegetation and debris. In 1999, the City installed a different device called a Clemson beaver pond leveler. Unlike a solid pipe, a Clemson Leveler uses a cage around a pipe that has been drilled with dozens of 2-inch holes. When installed, the water flows through the holes, but because the intake area is spread out along the pipe (versus a single entry), the beavers don't hear the sound of running water or detect the flow of the current. This reduces their dam-building response, and in fact, flooding has not been an issue since the Clemson Leveler was installed (pers. comm., Ellington Road resident Peter Soderberg)—even now when beavers are active in the wetland.

The pipes for the Clemson leveler eventually outlet on the other side of a fence into a dropped inlet. From here the water flows underground through a pipe until it is briefly daylighted near the intersection of Brookwood Road and Crestview Avenue, before flowing back into another pipe that angles across the road to the Indian Hill Conservation Area, where it joins the waters of Sandy Hill Brook.

On the negative side of the equation—and there are some serious negatives—invasive plant species have taken off on most of the property. Back in 1993, only

three species --Morrow's honeysuckle, multiflora rose, and purple loosestrife—were present. Today all three are more common, the purple loosestrife especially. In 1993 it was found almost exclusively within the marshy stretch below the powerline right-of-way, now it has spread throughout the right-of-way, into the cattail marsh, throughout the restored wetland area and is even growing on the periphery of the bog mat. Although 10,000 (or so) leaf beetles (*Galerucella pusilla*, *G. calmariensis*) were released as a biocontrol at this site in 2005, it does not appear that the beetles have had much, if any, effect.

Pretty yet pervasive, purple loosestrife has taken over a lot of the restored wetland and during the last 20 years, spread throughout much of the cattail marsh and expanded below the powerlines.

What's more, Morrow's honeysuckle, multiflora rose, and purple loosestrife are no longer the only problems. About 14 years ago, someone—perhaps a well-intentioned neighbor—planted half-a-dozen (or more) highly-invasive autumn olive around the edge of the "restored" wetland. The plants were in the ground in 2001, and by 2013, they had grown into bushes so big that it was almost impossible to see or access the wetland from Ellington Road. Furthermore, in the intervening years, dozens of new autumn olive bushes have seeded in on their own around the wetland margin. Last fall, a Northampton High School student organized a community service day to remove the autumn olive, and on a single Saturday morning, more than forty volunteers spent five hours cutting, chopping, and hauling load after load to a brush pile behind an abutter's home. That same morning, the crew also removed many other non-native plants growing on the old fill

piles and upland edges around the marsh near the end of Ellington Road, including enormous multiflora rose bushes, dozens of Morrow's honeysuckle, a similar number of glossy buckthorn, plus lots of Asiatic bittersweet.

A small part of the crew of volunteers cutting and lugging Autumn olive, loaded with berries, in the fall of 2013. *Photo courtesy of Keith Davis.*

Another new (since 1993) and worrisome invader here is glossy buckthorn. Not only is it growing throughout the red maple forest between Ellington and Florence Roads, it also has established along the edges of the wetland and is growing on the higher hummocks in the marsh and on the border of the bog. If it is not controlled, it might also establish in the bog itself.

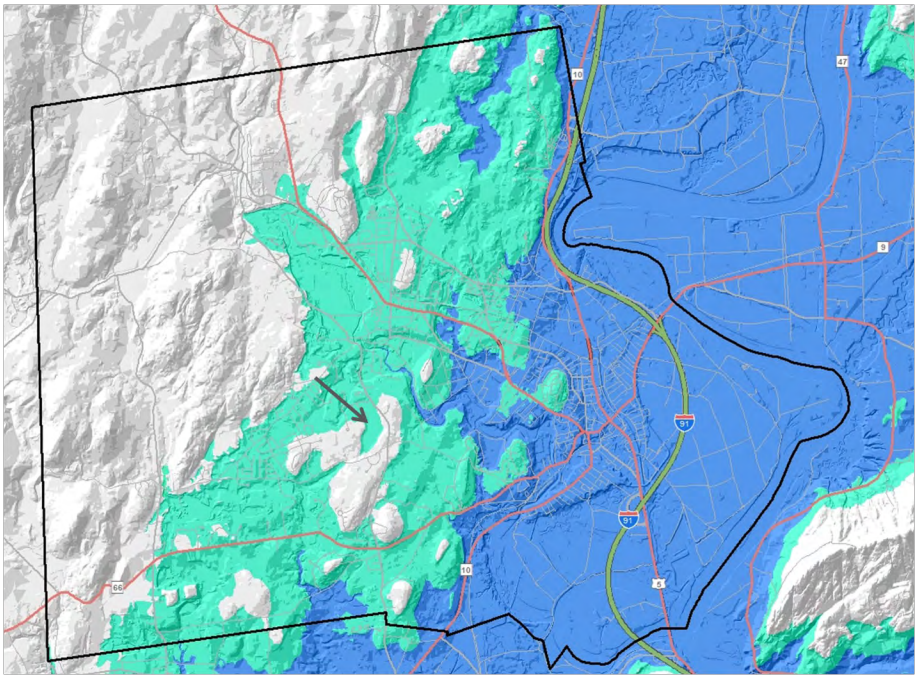
The last and final piece of negative news is that most of the people in the neighborhood still don't seem to know much about the 15-acre conservation area. The shift in ownership from an absentee landowner/developer to conservation land didn't seem to make much of a difference. Several continue to dump their yard waste along the margins, and over the years, a considerable amount of trash has been dumped on the property, making for an unsightly mess.

The remainder of this document describes some of the "new" findings about the property's geology, history and vegetation patterns.

Glossy buckthorn is now widespread throughout the forested portion, along the wetland edges and occasionally on the higher hummocks.

Geological and Human History

The first edition of *Rediscovering Northampton* described why this wetland complex, and the bog in particular, is here at all. That scenario remains the most likely explanation, and to briefly recap, the conditions needed to create a bog were laid down 15,600-12,400 years ago, during the era of Glacial Lake Hitchcock. At that time this area was a well-protected cove on an island just off lake's western shore. The cove itself was probably created by a large block of buried ice. Calm water conditions in and near the cove/ice block allowed fine clay particles to settle out from the lake's milky waters. When the level of Lake Hitchcock dropped and the block of ice melted, the underlying clay layers created an impervious lining, trapping rainwater and intercepting groundwater in the basin-shaped depression. With an impermeable bottom, restricted water flow and little nutrient input, the conditions were set for the development of a bog.



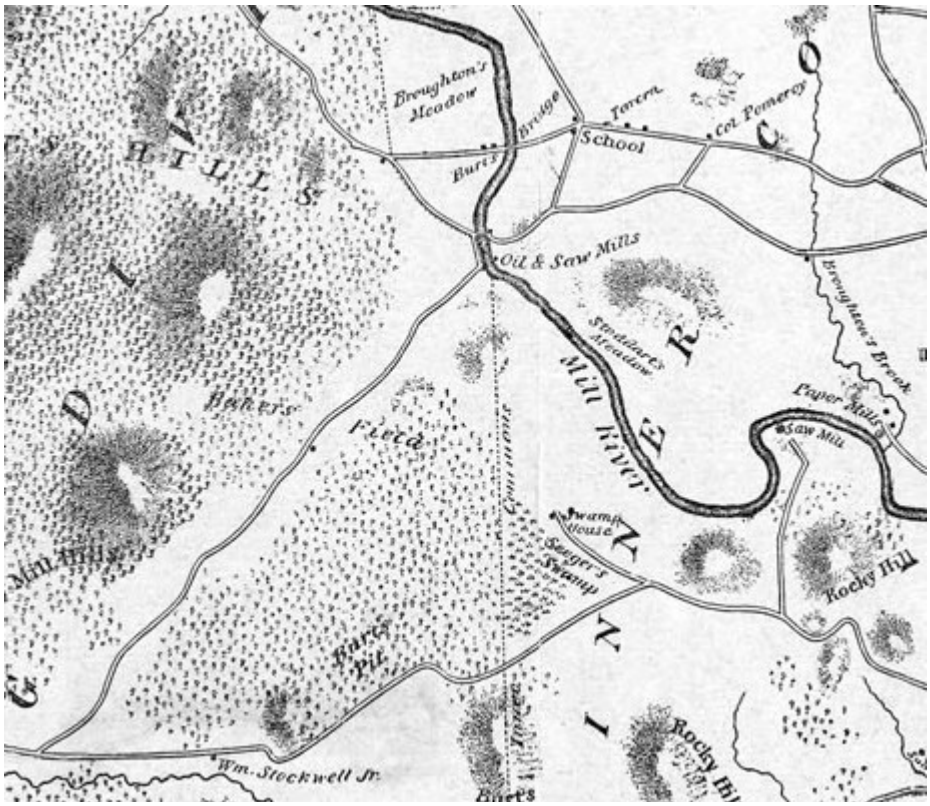
This GIS-created image shows the two levels of glacial lakes in Northampton, with the higher Glacial Lake Hitchcock in turquoise and the lower glacial Lake Hadley in blue. White areas are islands, and as this image reveals the wetland (arrow) was a cove in an island. Roads are included here to help with orientation, as is the boundary of Northampton. *Courtesy Northampton DPW-GIS.*

This coming year the validity of that scenario will be examined when a team of researchers from UMASS Department of Geosciences surveys the wetland's sub-surface using ground-penetrating radar. Their findings will provide a map of the underlying bedrock and will likely refine our current understanding of the wetland's geology and origin.

Human History

Since the first edition of *Rediscovering Northampton*, more information about the history of human activity has been uncovered and a revised version is offered here:

Based on historic maps and Sheffield's *History of Florence*, this wetland is the true "Burt's Pit," and was named after Gaius Burt, an "industrious" farmer who moved to Broughton's Meadow (now known as Florence) in 1798 and was its third full-time resident. Burt lived in Broughton's Meadow for 35 years before moving to Easthampton, and during those decades he accumulated 100 acres in Broughton's Meadow and became a part or full owner in several other properties and ventures. Exactly how his name came to be associated with this property is unclear; he may have been the original owner, or he may have been the first (or at least the best known) farmer to mine peat here. During his active years of farming, a veritable "peat fever" took hold in the region, and the use of peat as an excellent soil conditioner and amendment was widely promoted in farming publications. As a major farmer in the area, Burt and his sons probably mined peat to use on their own farm, and possibly sold it to others. By 1831, however, the "pit" was no longer named after Burt. It was known as Seeger's Swamp.



The 1831 map shows Burt's Pit further west and the conservation area as Seeger's Swamp. According to Sheffield, Seeger's Swamp is the original Burt's Pit. That the map is wrong makes more sense, especially given the closer location of Burt's farm to the bog and the fact that this map also has another error, showing Baker's Field off what is now Ryan Road, when it was actually located in the bend of the river and what is now Maine's Field. That said, the true location of Burt's Pit might never be resolved as a much smaller wetland does exist today in the area where the 1831 map notes "Burt's Pit."

David Lee Child
http://www.accessible-archives.com/wp-content/uploads/2013/10/David-Lee-Child.png

Five years after the Burt family moved away, the next notable owners of the peat bog property arrived in the area--David Lee Child and his wife, Lydia Maria Child. By then, Lydia was well-known for her

writing, and she is still remembered today for her now-famous Thanksgiving poem "Over the river and through the woods." Both she and her husband were ardent abolitionists and they moved to Florence in 1839--partly because of its progressive reputation and partly because of David's plan to grow sugar beets and produce slave-free sugar. For a few years, Child, along with two business partners, grew "large fields of beets in the meadows." Although they were successful in extracting sugar, they couldn't make a profit and after a few years, Child gave up on beets and according to the Daily Hampshire Gazette, he next "entered upon the manufacture of peat" and "bought the farm in the west part of town then known as the Seeger swamp farm, but since that time called the Child farm" (DHG, September 9, 1874). But like his beet operation, Child's peat operation failed too, as "the material provided was unfit for the purpose wanted and the attempt to put it on the market was soon abandoned." In 1849, the Childs left the area permanently.

After their departure, a small part of the bog was purchased by Dr. Edward Evans Denniston, then a prominent physician in Northampton. He had arrived just a few years earlier, in 1846, and after a brief stint at the Round Hill Water Cure, he built his own water cure establishment called Springdale on a large farm that was located where Cooley Dickinson Hospital now stands (The street called "Denniston Place" near the hospital is named after him). Until the Civil War, his "Home for Invalids" was extremely successful and on the 1873 map, Denniston's name appears as the owner of several pieces of land in Northampton and Baystate. Presumably Denniston's interest in the peat bog was to use the peat as a soil condition on his own farm next to his hospital. By the late 1870s, however, Denniston was in financial trouble and this may be when he sold his bog acreage to the next owner--Northampton State Hospital.

For many years, the hospital mined peat at this site and hauled it to their gardens on Burt's Pit Road. According to author Charles Sheffield, the practice of mining peat was still common in the late 1890s and, in describing the Burt's Pit area, Sheffield noted that "large quantities of muck are annually dug in this region." In 1955, the State Hospital sold their small part of the bog to Leonard Day, who resold it in 1959 to the Gutowski family. The Gutowski's held on to the land until 1994, when they donated the very same 5.25 acre parcel to the City's Conservation Commission. Today the bog's mining history is still etched in the lines of its old drainage ditches, which are still obvious on today's aerial photographs. The large ponds, including the one in the conservation area, were created when the peat was excavated and hauled away.

Aside from a few other small in holdings, most of the wetland area—aka Burt's Pit—aka Seeger's Swamp---aka Child's Farm-- was owned in 1916 by Edward S. Bottum. A life-long resident, Bottum

owned quite a bit of property in this vicinity, including land on the other side of Florence Road (including Bottum Road). When he died in 1925, his heirs sold some of the land to Adolf and Alice Mizula and the rest (which included most the wetland and upland area along Florence Road and Burt's Pit Road) was sold in 1948. During their tenure, the Mizula's operated a dairy farm and gradually sold off a series of lots. In 1970, they sold a large piece of land along Florence Road (including part of the wetland) to Kay-Vee Realty Company. In 1974, they sold the remainder to John Skibiski, a realtor who was acting on behalf of Kay-Vee Realty.

The conservation area parcels in 1952. Note how forested the area is and how open water is difficult to detect (in contrast to the photo below.)

By then, Kay-Vee Realty had been working in the area for more than a decade and had already built hundreds of homes in Easthampton. After acquiring this property, they wasted no time getting their plans in order. Within months, they had submitted a proposal for a 101-lot subdivision. It was called Brookwood Estates, and less than a year later, the planning board approved the project in full.

The old drainage lines are clearly evident in this photo taken during the 1971. It also appears that the fill and piping of the brook has caused the water level in the wetland to rise. *Courtesy of UMASS Archives.*

Ultimately about 90% of this development was built. What changed the original plan was the passage of the Wetlands Protection Act and the realization that there were some serious drainage problems with some of the new homes—like flooded basements and cracked walls. Ultimately parts of two roads and twelve houses were not developed, including four that would have been right in the wetlands.

Once the City shut down Kay-Vee from building in the wetlands, the company stopped paying taxes on the property. In 1990, the City took the remaining land-- the unusable scraps of the former subdivision-- in lieu of back taxes and named it the Brookwood Marsh Conservation Area.

Vegetation Patterns

In the twenty years since the first natural history survey, the broad vegetation patterns within the conservation area have remained generally the same. Aside from the arrival of non-native plants, the powerline is still a mix of lawn and tangled shrubs, the former pasture/hayfield is still dominated by red maple, the disturbed wetlands between Crestview and Ellington remain a jumble of old fill piles and younger trees.

The biggest change in vegetation has been in the 21-acre wetland complex. Because of beaver activity and the installation of the Clemson leveler, the water level in the wetland is now slightly higher than it was in 1993, and that change has transformed the vegetation patterns. Twenty years ago, the main wetland was covered with a vast expanse of young red maple and the cattails were restricted (more or less) to the area under the powerlines. Out in the peat bog, there was a slightly higher "island" that even supported a few white pine. Today the red maple and pine are gone and the cattails have spread dramatically.

Where the red maple once grew, the sphagnum mat is now open and sunny. The wettest portions are toward the center and are covered with the arching stems of false loosestrife, scattered meadowsweet, marsh fern, sundew, and sedges. West of the main drainage ditch, where the peat is a little drier, the vegetation shifts and includes more woody shrubs (winterberry, meadowsweet, steeplebush, chokeberry). Back in the bog portion of the wetland, the sphagnum mat is more open too and in place of the shrubbier vegetation from

Twenty years ago, this area was covered with 3-5 foot red maple. Today it is an open sunny mix of water willow, purple loosestrife, cattails, sundews, orchids, sedges and grasses. Pickerelweed (lavender flowers) grow along the open water margin.

Uplands

1: Powerline ROW: Periodically cut back, with portions cleared for lawns

2: Brushy tangle, now dominated by Morrow's honeysuckle

3. Old fill, oak, autumn olive, various non-natives

Wetland
W-1a: Red maple dominated with understory mostly of Morrow's honeysuckle and glossy buckthorn. Some trash and dumping of yard waste

W-1b: Red maple dominated, lots of fill piles, some cottonwood, alder and abundant non-natives, especially Asiatic bittersweet, Morrow's honeysuckle

W-2: Alder, glossy buckthorn, winterberry thickets

W-3: Cattail dominated, with abundant purple loosestrife

W-4: Water willow, meadowsweet, etc. on sphagnum mat

W-5: Slightly higher wetland—more shrubs

W-6: *Calamagrostis* grass, mixed with cattail, steeplebush

Detailed Vegetation Descriptions

15-Acre Parcel (See Vegetation Map)

Powerline Swath

The powerline right-of-way runs along the back border of the homes on east side of Ellington Drive and cuts along the eastern edge of the wetland. Roughly fifty feet wide, it was laid out and constructed in 1939. In the late 1960s, new transmission lines were installed and every few years, the understory vegetation is cut back.

Within the powerline ROW, the plants vary depending on the hydrology and activities of the abutters. For instance, at the northern end several neighbors have converted the powerline ROW/ conservation area into lawn and a few use it as a place to dump their yard waste.

Further south the right-of-way transitions to an overgrown tangle and a messy mix of Morrow's honeysuckle, multiflora rose, glossy buckthorn and goldenrod, along with autumn olive, Asiatic bittersweet, and grape. Black locust is on one of the old fill piles.

Along the wetland edge, the shrubby mix transitions to include speckled alder, silky dogwood and steeplebush, but multiflora rose and glossy buckthorn continue to dominate.

Further to the south in the wetland, the vegetation below the powerline is mostly cattail, with an abundance of purple loosestrife. Grasses (*Calamagrostis canadensis*) and bulrushes are common too.

The powerline, looking north from off the property and near the area with reed grass, *Calamagrostis*.

Marsh & Open Water (formerly Red Maple Swamp/Beaver Pond)

This part of the conservation area includes the 2.5 acres of marsh and open water that lie along the northern fringe of the 21-acre wetland. A loop trail (on old fill piles) leads between two smaller pockets of open water and along the edge of a longer stretch of open water and provides a view

across the expansive marsh. As noted earlier, this wetland complex is dramatically different in composition and appearance from twenty years ago. The red maples have died and have been replaced by a mix of sedges, bulrushes, marsh fern, false loosestrife, sundew, and meadowsweet. Purple loosestrife grows throughout this area and has invaded the cattail marsh, the restored wetland, and occurs along the edges of the old fill piles.

Clockwise from the top: Pickerelweed along the edges of the open water; water willow in bloom; a mix of Joe Pye weed and purple loosestrife; a type of orchid known as nodding ladies' tresses (*Spiranthes cernua*).

<u>Disturbed Swamp Forest</u>

Fifty years ago, this area was dramatically altered by bulldozers. Rock piles, mounds of fill and a scruffy

The leaves of water willow glow red in the early autumn, transforming the slightly drier section of the wetland to a carpet of color.

mix of plants is the uninviting legacy of that past activity. The understory is covered with Morrow's honeysuckle and Asiatic bittersweet is widespread. The trees include gray birch, quaking aspen, cottonwood and red maple.

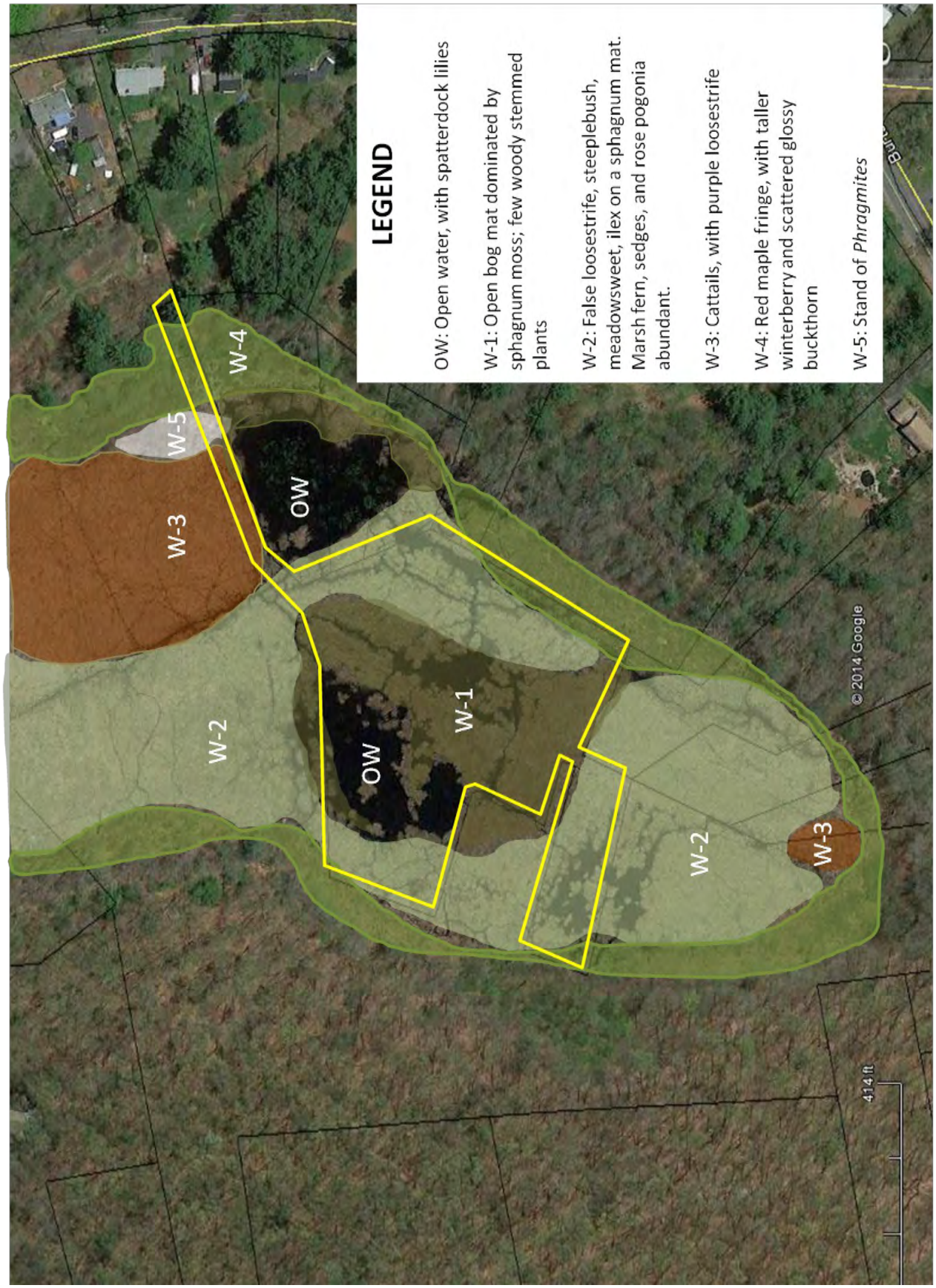
Jumbles of rocks and fill piles left behind by the developer are common within the red maple forest. During the last twenty years Morrow's honeysuckle (with yellow leaves) and glossy buckthorn have become the most common shrubs in the understory.

Bog Habitat (5.25 Acres)

The true bog begins in the southern half of the wetland complex and includes a mix of open water and thick, floating mats of sphagnum moss. Although this parcel has no public access, by skirting along the edge of the woods, you can access the bog. A good visual cue to figure out when you've reached the property boundary is a cluster of paper birch. At the margin of the wetland, there is a large mound of rock and fill that was dumped here in the 1970s. As unnatural as it is, it now provides an excellent lookout across the bog, and at the moment, its jumbled boulders also include a cavity that beavers are currently using for shelter. There is also a fallen tree trunk near the base of the mound that is big enough to walk out on and check out the plants on either side.

A photographer uses the fallen trunk to go a little further out on the bog mat and take pictures of rose pogonia orchids (*inset*).

But beyond the lookout and the tree trunk, if you want to actively explore this portion of the conservation area, you will need to visit during the winter


LEGEND
OW: Open water, with spatterdock lilies
W-1: Open bog mat dominated by sphagnum moss; few woody stemmed plants
W-2: False loosestrife, steeplebush, meadowsweet, ilex on a sphagnum mat. Marsh fern, sedges, and rose pogonia abundant.
W-3: Cattails, with purple loosestrife
W-4: Red maple fringe, with taller winterberry and scattered glossy buckthorn
W-5: Stand of *Phragmites*
W-2
W-3
W-5
W-4
OW
OW
W-1
W-2
W-3
© 2014 Google
414 ft

when the ice is solid, or carry in some kind of small boat…or be ready to get very, very wet. The 5.25 acres includes a mix of open water, sphagnum mats, and brushier margins.

Open Water

Based on the lot lines, the open water areas in the bog appear to be artifacts from the19th century peat mining operations. The open water areas have some spatterdock water lilies, but are otherwise free of vegetation.

Without a boat, the open water is best seen from the top of the old fill pile.

As a fish-free setting, the open water ponds now function like a large vernal pool and in April and May, spring peepers, wood frogs, spotted salamanders and gray treefrogs breed in these waters. The bog's open water also provides habitat for some unusual dragonflies, including the impressive spatterdock darner (*Aeshna mutata*). Painted turtles, spotted turtles and snapping turtles also use this part of the wetland.

Peatlands (Sphagnum Mats)

Dominated by broad expanses of open sphagnum moss, the peatlands support about two dozen

Although no longer on the state's list of protected species, spotted turtles are rarely found in Northampton.

species of plants that have evolved to cope with these water-logged, low oxygen, nutrient poor, and highly acidic conditions. These include sheep laurel, cranberries, sundews, two kinds of orchid, cotton grass, and a mix of grasses and sedges. In areas where the peat is slightly higher and drier, there are young red maple, and a few pathetic white pine, as well as winterberry, chokeberry, meadowsweet and high bush blueberry.

Once the ice is solid, winter is a good time to explore the bog mat. Not only is it less damaging to the mat, but the views and colors of the sphagnum are spectacular.

Invasive plants are currently not widespread, but they are a worry here. A good-sized patch of *Phragmites* appears to be spreading into the marsh and bog margin, and purple loosestrife is scattered along the margins as well. Glossy buckthorn is also increasingly found along the margin, including several large specimens growing on the mound of fill that serves as a look out.

Cranberries (top) are common on the sphagnum mat and can be found all year round. Round-leaved sundews are another common plant, but are only visible in the growing season. These leaves are dotted with trapped insects.

Recommendations

From my perspective, this little-known, seldom-used conservation area is one of the most interesting within the City's entire conservation portfolio. It has some problems, and some of them (invasive spe-

cies, dumping troubles) are more serious than others (poor signage, limited trails).

One project that would help to raise the profile of this conservation area and also help build neighborhood awareness/ community support is the construction of a wildlife blind. It could be located at the southwest corner at the end of the existing mowed trail and much like the blind at Fitzgerald Lake, it would give people a new vantage point to observe the wetland and the wildlife it supports.

With more awareness, a friends' group might form and they could help address other tasks, such as:

<u>Short Term</u>

1. Improve parking for visitors at the end of Ellington Road
2. Re-name the conservation area to reflect its history (e.g. Burt's Pit, Seeger Swamp, Child Farm, etc). It is a misnomer to call this place Brookwood Marsh. As long time conservation commissioner and Ellington Road resident Mason Maronn pointed out, the developer of Brookwood Estates was the one responsible for "cutting down the woods, piping the brook, and filling the marsh."
3. Install a sign at the edge of the conservation area (versus further back where it is now located.)
4. Create and install a kiosk that describes the property's natural history (geology, ecology and human history).
5. Improve the existing wetland trail with better bridges and boards to create a loop.
6. Inform abutters about the conservation area to try to reduce/eliminate the prac-

This is the only place in Northampton where cotton grass grows. A member of the sedge family, its bright white seed heads stand out in the fall.

tice of dumping lawn clippings and extending backyards.

Autumn olive in fruit.

Long Term

1. Control invasive species (autumn olive, glossy buckthorn, Asiatic bittersweet and Morrow's honeysuckle) around the Ellington Road access.
2. Work with National Grid to fund the release of another round of purple loosestrife leaf beetles to try to manage the purple loosestrife more effectively.
3. Work with the neighboring landowner to limit the spread of *Phragmites* near the bog.
4. Secure permission from the abutting owner to create a trail that connects with existing trails and includes a spur to the mound of fill that overlooks the bog
5. Acquire the abutting western woodlands.

The *Phragmites* stand is on both private and city-owned land.

Funding for this report was made possible by the Community Preservation Act.

Unless otherwise noted, all photographs by Laurie Sanders.

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Lichens are pollution-sensitive and this is one of a few places in Northampton where this branched *Usnea* lichen is found.

A Natural History of the Sandy Hill Lots

Prepared by Laurie Sanders, M.S.
December 2014

Sandy Hill Lots

Sandy Hill Lots
Brookwood Marsh Greenway

Two lots, totaling less than an acre, were acquired as part of the land once held by the Kay-Vee Realty Company that was taken in lieu of back taxes in 1990.

Brookwood Drive Lot

Only a ¼ acre in size, this tiny lot is mostly a marshy wetland, fed by water from the large wetland complex at the end of Ellington Road. The lot includes a mix of quaking aspen and red maple, with a mowed margin and a scruffy edge with multiflora rose and bittersweet.

The water reaches this site via a pipe and is briefly daylighted on this lot, before being routed back into a pipe, which angles across Brookwood Drive and empties into Sandy Hill Brook.

The wet drainage and swampy ground on the Brookwood Drive lot.

Sandy Hill Road Lot

Located at the intersection of Sandy Hill Road and Brookwood Drive, this mostly open lot (0.41 acres) is underlain by sandy loam and crossed by a wide trail that leads to a more extensive network of old wood roads and foot paths. The trail is rutted and reveals the underlying sands which give Sandy Hill its name.

The path cuts across the Sandy Hill Road lot, exposing the sand below. At the edge of the lot are young white pine and oak. Behind this is a large patch of pine/oak woods that are laced with trails.

The open areas of the lot are dominated by grasses, goldenrod, blue curls, dewberry and *Polytrichum* moss, while around its borders is a mix of pine, oak, black locust, staghorn sumac and sweetfern. So far, there are not many invasive plants, but Asiatic bittersweet is growing near the road edge along with several autumn olive and multiflora rose bushes.

What makes this parcel interesting and valuable is its continuity with Sandy Hill, one of the largest remnants of pitch pine/white pine/oak forests in Northampton. About 140 acres in size, this patch of woods abuts the Brookwood Marsh Conservation Area and to the west, backs up to dozens of houses in the Ryan Road neighborhoods. The property has a patchwork of owners. While some portions have been left idle for decades, other areas have been logged in the not-too-distant past. These have grown

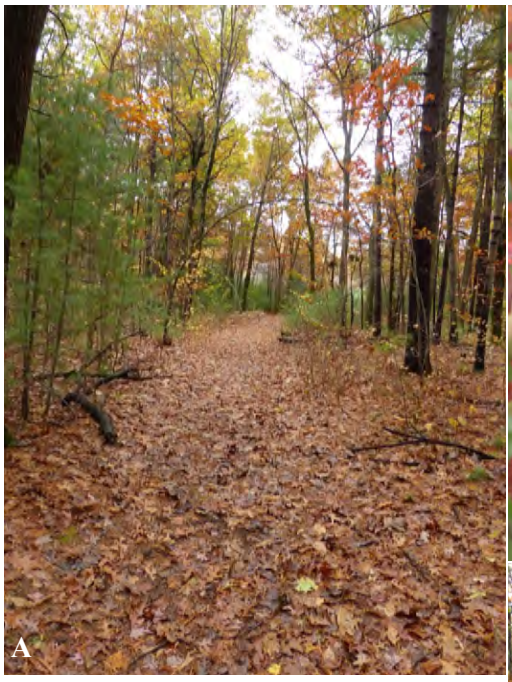
Top Photo: Polytrichum moss grows in abundance on the sandy substrate along the disturbed edges of the conservation area.

Middle Photo: A mix of pitch pine and white pine dominate the forest. There is almost no vegetation in the understory.

Bottom Photo: An open clearing dominated by little bluestem. Unless there is a fire or mowing, the young pine in this photo will replace this clearing within the next 25 years.

up into a mix of oak, birch and red maple, while the older forests include mixed stands of pitch pine and white pine, with scattered oak. There is also a small clearing, dominated by little blue stem, and which is apparently is a popular area for parties for local teens.

The protection of this adjacent 140-acre patch should be a priority because of its special ecological values (pine barrens, habitat for box turtles, presence of vernal pools, and good nesting habitat for turtles), its recreational values (network of trails), and its contribution to groundwater recharge for the Clark Street wells.



A. The sandy trail that crosses the city-owned lots becomes a beautiful wood road once you enter the forest. Other trails branch off from it and connect to the nearby neighborhoods.

B, Scarlet oak is common in these woods.

C. An old, abandoned culvert, probably left behind by Kay-Vee Realty, the developers of Sandy Hill Road, Brookwood Avenue, Ellington Road and Crestview Avenue.

Funding for this report was made possible by the Community Preservation Act.

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A Natural History of the Indian Hill Section

By Laurie Sanders, M.S.
December 2014

Indian Hill Conservation Area

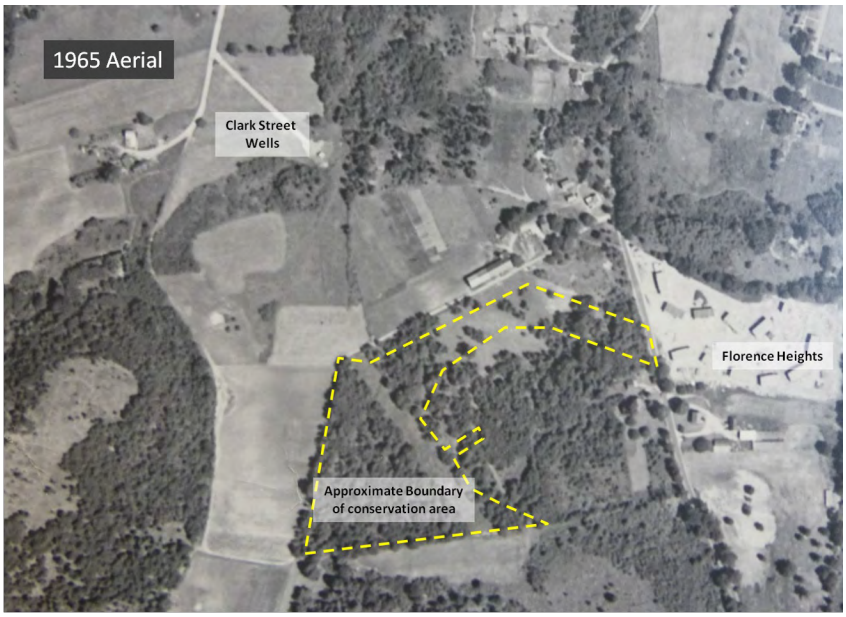
A Natural History of the Indian Hill Section, Brookwood Marsh Greenway

Like every other conservation area that was inventoried in 1993, the most significant change at the Indian Hill Conservation Area has been an increase in the abundance of non-native plants, particularly within the powerline right-of-way. Fortunately, the most ecologically significant portion of the property--the stream and bordering wetlands—remains mostly free of invasive plants. Meanwhile, the other problems that existed in 1993—poorly defined access and dumping of yard waste—continue.

Indian Hill in context. The conservation area is shown in yellow. To the north are the city's Clark Street wells, and to the south are the two protected parcels that form the Brookwood Conservation Area.

History

Although the Nonotuck undoubtedly used this area, the name "Indian Hill" is a completely made-up name for the condominium development and has no historical authenticity whatsoever. During the 1800s this area was all farmland, and that farming tradition continued until the 1960s.



From that period on, this part of Florence began to experience more development; Florence Heights was built across the street, the homes in the Ryan Road neighborhood were built, and several new homes went in along Florence Road. During the 1970s nearly 200 more homes were built surrounding properties on Sandy Hill Road and off Brookwood Road.

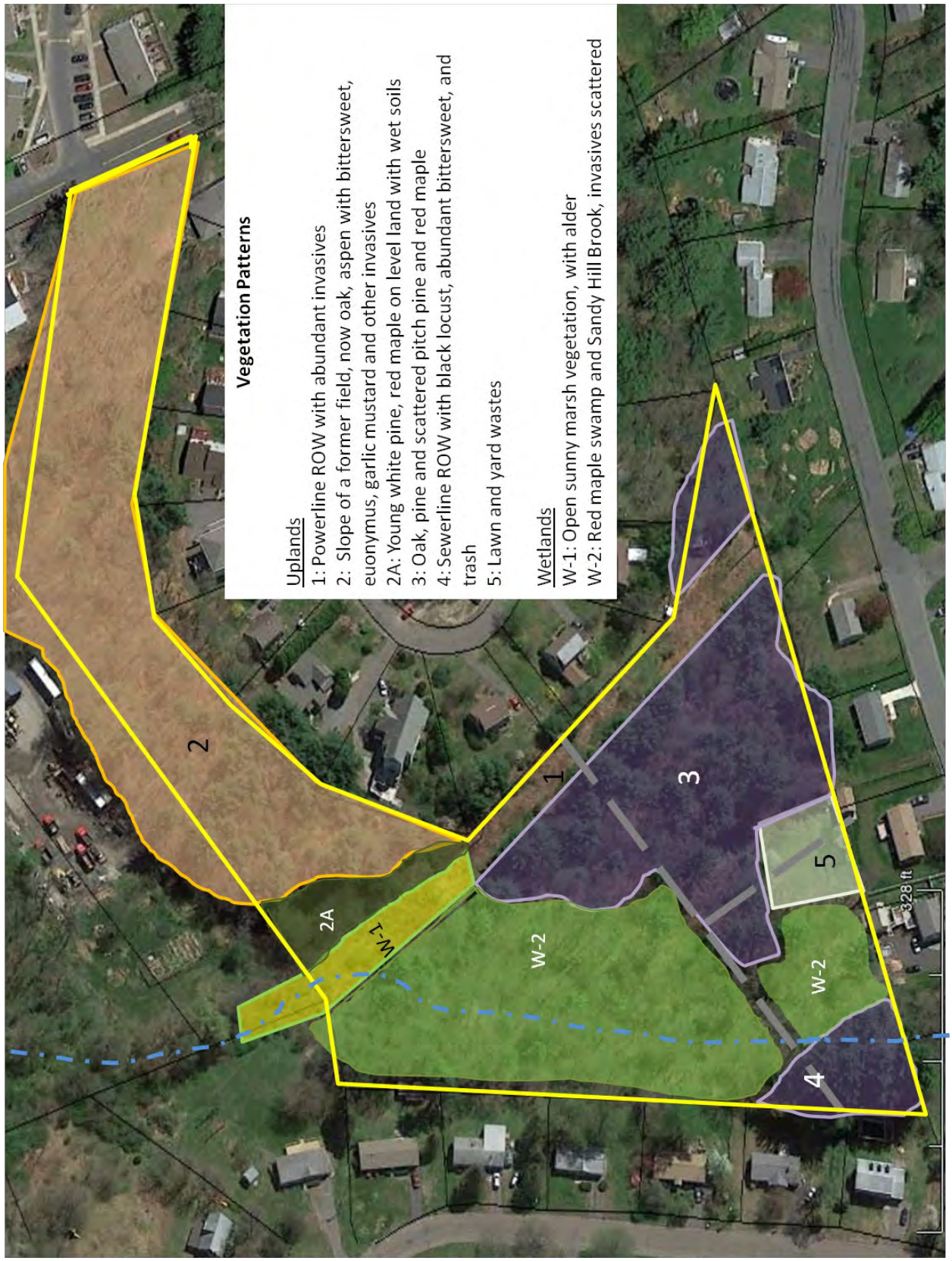
In the mid-1980s, the 13-acre property piece here was sold, with the buyer proposing a cluster subdivision. As a condition of clustering, the developer donated to the City the seven acres that now form the Indian Hill Conservation & Aquifer Protection Area. Although that figure represents more than half the subdivision's total acreage, the donated portion consists of all of the undevelopable land— a stream, bordering wetlands, a steep slope, a powerline right-of-way, and a sewer line easement. This kind of donation of marginal land was typical during the early days of cluster subdivisions, and in this case, it was literally on the margin of the property, so that the conservation land now wraps around two-thirds of the subdivision.

The access into the conservation area—not too obvious or inviting.

Although the conservation land is almost entirely bordered by development, it also lies fairly close to a few other city-owned parcels, including the Clark Street drinking water wells (8 acres), the Brookwood Conservation Area (20 acres), and closer still, two very small lots along Brookwood Drive.

Vegetation Patterns

During the twenty years since this property was first surveyed, the basic patterns have remained the same. Based on hydrology, vegetation and past land use, the conservation area can be separated into six major vegetation zones: (1) powerline uplands; (2) powerline wetlands; (3) the Florence Road slope; (4) sewer line easement; (5)


Vegetation Patterns
Uplands
1: Powerline ROW with abundant invasives
2: Slope of a former field, now oak, aspen with bittersweet, euonymus, garlic mustard and other invasives
2A: Young white pine, red maple on level land with wet soils
3: Oak, pine and scattered pitch pine and red maple
4: Sewerline ROW with black locust, abundant bittersweet, and trash
5: Lawn and yard wastes
Wetlands
W-1: Open sunny marsh vegetation, with alder
W-2: Red maple swamp and Sandy Hill Brook, invasives scattered
2
2A
W-1
W-2
1
3
5
W-2
4
328 ft

the brook and its floodplain, and (6) surrounding upland woods. More detailed descriptions of these areas follow and the accompanying vegetation map offers a more detailed assessment.

The powerline ROW changes appearance based on its maintenance schedule; top shows ROW in 2012; below in 2014.

The Powerline-- Uplands and Wetlands (1)

The powerline was first built in the late 1930s and was updated in the late 1960s. It is periodically maintained, and now varies between 30-60 feet in width. It is 640 feet long on the property, extending from Brookwood Drive to the property's northern boundary, and includes both upland and wetland habitats.

During the last twenty years the upland portion has shifted from a mix of bluestem grasses, goldenrods, young birches, and patches of sweetfern to an unruly mess of invasive species. Asiatic bittersweet is the most abundant of all, but autumn olive, multiflora rose, garlic mustard, glossy buckthorn and scattered catalpa are also present. In the midst of the non-natives you can still find native plants. There are resprouting red maple, patches of goldenrod, some sweet fern, as well as an abundance of American hazelnut, raspberry, meadowsweet, hay-scented fern, bracken, pale touch-me-not, cow-wheat, Virginia creeper, grapes, sedges and grasses.

Pale touch-me-not grows in the ROW as does American hazelnut. Beaked hazelnut is also found on this conservation area.

Heading downslope to the wetter areas, the invasives begin to drop out and give way to species that favor a higher water table, including more halberd-leaved tearthumb than I've ever seen, spotted touch-me-not, cinnamon fern, silky dogwood, meadow sweet, winterberry, fringed loosestrife, turtlehead and Joe Pye weed. There is also some multiflora rose, but less than in the drier borders of the powerline.

From the powerline, heading up slope to Florence Road, the vegetation shifts from younger trees to older. Large bittersweet vines can be found, as well as massive boulders that were pushed during construction of the condominiums.

The Florence Road Slope (2)

From the powerline wetland, the east arm of the conservation area is a narrow, wooded strip (100-140 feet wide), which climbs gradually and then more steeply until it reaches Florence Road. The composition of the vegetation shifts as you follow this transect, with the changes reflecting the interplay between hydrology and land use history.

Larger trees grow near the top of the slope, closer to Florence Road. The conservation area is narrow, in this stretch, but the forest is nice.

Close to the powerline wetland, the land is level and there is a dense stand of young white pine, intermixed with red maple, black cherry and in the understory, ironwood. Virginia creeper, poison ivy, touch-me-not, Canada mayflower, New York fern and Asiatic bittersweet grow in the damp soils and shade of the pines.

Not far away, the band of pin cherry that was alive in 1993 has

died, and the forest floor is carpeted with hayscented fern. The slope climbs gradually and on these better drained soils grow big-toothed aspen, oak, more white pine, and sprawling Asiatic bittersweet that is clambering over the Virginia creeper and dewberry.

The slope levels off and in a wetter spot, the bittersweet drops out and is replaced by a carpet of wood fern, Christmas fern and spicebush. Scattered winged euonymus and Morrow's honeysuckle are growing here.

As the slope climbs again, the forest becomes more open and the soils are drier. Black cherry, white pine and red maple dominate the canopy. The ferns drop out, and the understory is mostly bare, except for a few isolated partridgeberries, Can-

Views of the upland forest, as well as images of dwarf ginseng and wood anemone, two common spring wildflowers that can be found at this conservation area.

ada mayflower and starflower.

Nearing Florence Road, Asiatic bittersweet reappears and garlic mustard becomes common. Black locust, a species that readily colonizes disturbed soils, grows here, and there is also an impressive shagbark hickory. Even closer to the road, in the vicinity of lots of giant boulders, is a small patch with sugar maple, red maple and trillium. Along the roadside, Norway maple has taken hold along the edge.

Surrounding Upland Woods (3, 4)

On the higher, drier ground between the powerline ROW and the stream is a mixed forest, dominated by white pine, red oak and red maple. The understory vegetation is thin, but there are some large patches of hay-scented fern and an abundance of Canada mayflower and star flower. Partridgeberry, northern running pine, poison ivy and an old apple tree grow here too. This is a very pretty part of the conservation area.

In the property's southwestern corner is a similar forest, but it also includes a few pitch pine.

The Sewer Easement(4, 5)

At the western end of Indian Hill Road is a thirty foot wide sewer easement, which was supposed to serve as the access into the conservation area.

Top to Bottom: View from the sewerline, looking north along the stream; litter left behind on the sewerline; the stream, bittersweet, honeysuckle and a basket ball stand(!) dumped in the forest; yard waste dumping along the sewerline (#5 on map).

But since no one goes here—at least not via this access—the "path" has been maintained by the abutting landowner as lawn and where it borders the powerline ROW, the entry is blocked by multiflora rose, Morrow's honeysuckle, and a white pine entangled by Asiatic bittersweet. Growing below is another unwelcome non-native plant—goutweed.

West of the powerline, the sewer easement zigzags its way through woods. One arm heads toward Brookwood Drive, and neighbors use part of it as a lawn and the edges as a dumping ground for all sorts of yard waste. The other arm of the sewer line continues west, crosses Sandy Hill Brook and continues to Sandy Hill Road. At the stream crossing, the sewer line is a steep, twenty foot high berm. The top and slopes of the berm has been overtaken by a nasty mass of bittersweet vines and young black locust. Over the years, people have dumped different kinds of junk along the berm, from old bottles and cans to a complete, but broken basketball stand! With some effort, this could be a beautiful trail, overlooking the brook and offering easy access into the site from both Brookwood Drive (via the powerline ROW) and Indian Hill Road.

Top to bottom: Water from old peat bog and Sandy Hill Brook; culverts under sewerline; sandy bottomed brook.

<u>Sandy Hill Brook and its Floodplain (w-1, w-2)</u>

The most interesting portion of the conserva-

Clockwise from top: A pileated woodpecker pounds away on a red maple; lush cinnamon ferns in the understory below the red maple; the brook with an old tire; lesser celandine, an unwelcome non-native plant, has established along some places on the brook's wet borders.

tion area is Sandy Hill Brook and its bordering wetlands. The brook is fed by a stream that drains Sandy Hill as well as the water from the Brookwood Marsh Conservation Area, which is piped for almost 1,500 feet before daylighting at the southwest corner of the Indian Hill Conservation Area. Not unexpectedly, the 100-foot stretch between the culvert and the sewer line is dominated by invasives—especially multiflora rose, Japanese barberry and bittersweet. Downstream from the sewer easement, however, the surrounding vegetation shifts and most of the invasives disappear.

The brook is shallow, sandy-bottomed and bordered by a red maple forest, with a scattering of white pine, hemlock and elm. Highbush blueberry, winterberry, silky dogwood, fetterbush, alder, and witch hazel are common in the shrubby understory. Below the woody shrubs is an herbaceous layer that changes with the seasons. In the spring skunk cabbage covers the wettest areas, while Canada mayflower, wood anemone, trout lily, wild oats, violets, golden ragwort, red trillium, and various

grasses thrive in the wet, rich soils along the stream and surrounding wet woods. By late summer, these plants are overtopped by touch-me-not, asters and a mix of ferns (cinnamon, sensitive, marsh fern, New York fern, lady fern and royal fern).

In contrast to the short stretch near the sewer line, invasive plant species are not too common in this area…yet. Multiflora rose is the most abundant (but still manageable), while Asiatic bittersweet and Morrow's honeysuckle are found at even lower levels. The latter are most common in a new area of erosion. A storm drain from Indian Hill Road empties on the conservation area and the stormwater has created a gully. The disturbed soils and sands are where the bittersweet has taken hold.

After leaving the conservation area, the brook eventually enters the Mill River, half a mile downstream, opposite the Maines Field Recreation Area.

Recommendations

Although these seven acres were not originally donated because of their conservation value, they do, in fact, have conservation value. Not only do they provide groundwater recharge for the nearby public wells, but they also include habitat for a variety of plants and animals. This property could also be a place for people to explore and enjoy the natural world. They don't at this point, but that could change if:

(1) signs were installed to indicate the property is a conservation area, of which it seems that many of the neighbors may be unaware;

(2) the public access point on the Indian Hill cul-de-sac were improved. It has not been maintained as a "public access." Instead the first part of the 15-foot strip is mowed and looks like part of a private lawn, and at the far end, where it is supposed to lead into the conservation area, an impenetrable tangle of vegetation—a mix of young white pine, coiling bittersweet and a massive multiflora rose bush forms a barrier.

(3) a series of trails were created leading from the Indian Hill cul-de-sac through the property and connecting to Florence Road and Brookwood Drive. As part of this, the sewer line berm could be made into trail—it might even be possible to make this handicapped accessible.

If these steps were taken, it is possible that the neighborhood would begin to take ownership of this conservation area and enjoy what it has to offer. Already the small patch of woods in the center of the In-

dian Hill cul-de-sac has a kids' fort and a mini-network of trails. With some improvements, this property could also become a bigger, wild place for young people to explore too.

Other recommendations include:

1. Work with the powerline company to control invasive plants along the ROW
2. Work with the DPW to control the erosion from the storm drain.
3. Notify owners about discarding yard waste and other junk.
4. Work with neighbors (and others) to clean up the site and control multiflora rose, barberry, and bittersweet along the brook.
5. Organize a nature walk.

Erosion in the conservation area has been aggravated by a storm drain.

Funding for this report was made possible by the Community Preservation Act.

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