

A History of Rock Meadow in Belmont, Massachusetts

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Introduction

Rock Meadow is a large parcel of meadowlands, wetlands, woodlands and community gardens on about 70 acres of conservation land in the northwest corner of Belmont, Massachusetts. It has existed as open space for as long as records are available. Uses of the land have included meadow, agriculture, and now conservation. This paper explores the history of the land and factors that have allowed it to remain as open space.

Rock Meadow is bounded by Concord Ave. and Mill St. to the north and east. The Kendall Gardens development is to the south, and Beaver Brook (the Waltham border) to the west. When the town purchased it in 1968, it was the largest available parcel of undeveloped land.

Today, the land is managed by the town's conservation commission. It is used primarily for passive recreation: walking, birding, cross-country skiing and gardening. Over the past 25-30 years the tree and shrub layers have been expanding at the expense of the meadow. As of August 2007 a multi-year project was begun to remove invasive plants and restore the meadow.

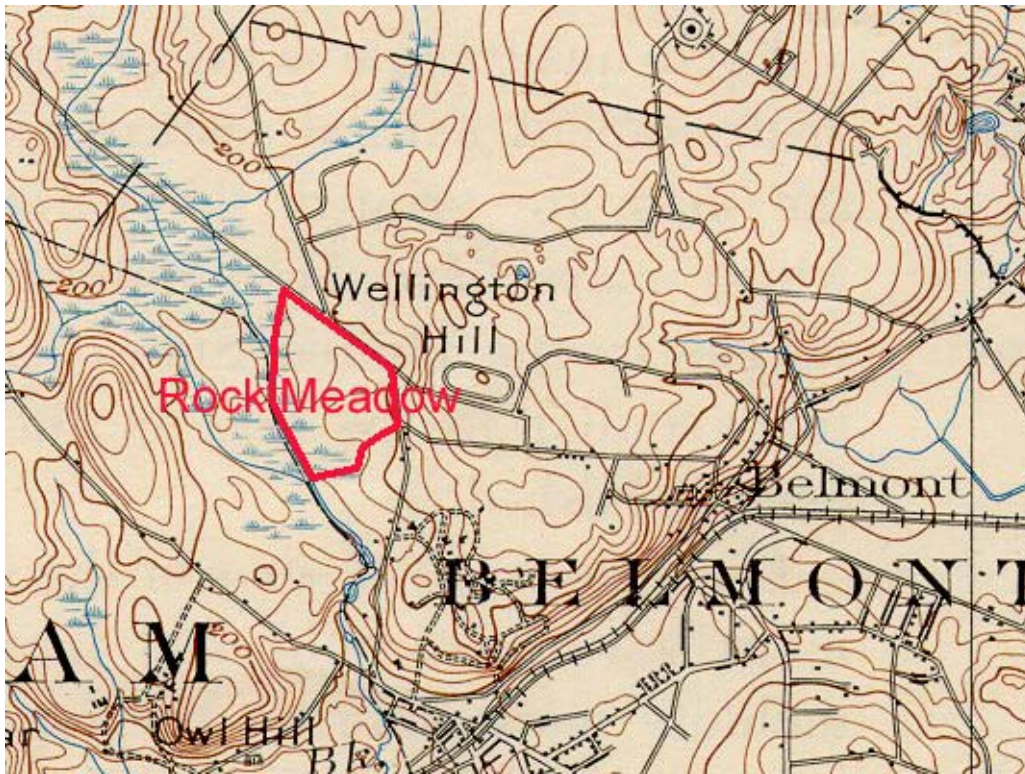
Prehistory

Rock Meadow is on the northwest side of Northern Border Fault on the highlands of volcanic and plutonic rocks that were thrust over the Cambridge slate of the Boston Basin hundreds of millions of years ago [Skehan, p.174]. To the Southeast is the Boston Basin. The meadow lies 180 feet (160-200 feet) above sea level, separated from the Basin by Wellington Hill at 300 feet. Belmont Center, just to the east, in the Basin is at about 40 feet above sea level. These are shown in Figure 1.

After the glaciers receded about 10,000 years ago, indications are that a lake existed in this area until the shore was breached at south end. This left a soil that is predominantly a mixture of sandy loam and rocks. The NRCS Soil Survey indicates that just over half of the acreage of Rock Meadow is classified as 'very stony.' Water sources for the wetlands in the meadow are runoff from the surrounding hills and spring fed streams. The meadow is drained by McLean Brook. This small brook flows into Beaver Brook, which forms the Western boundary for the meadow. Further upstream, Belmont Springs also feeds into Beaver Brook.

For several thousand years before the European settlers arrived, Native Americans inhabited the area. The Pequosette Indians were living in the area at the time of the Puritans arrival, in 1630. While it is not known exactly how the area of Rock Meadow was used by the Indians, it is believed that they did use fire to clear the land of trees and shrubs [Clark and Ewing, p.15]. A survey of Beaver Brook by Governor Winthrop in

Figure 1 1903 Map indicating location of Rock Meadow



the 1630's indicated that there were many beaver dams and downed trees in the area (hence Beaver Brook) [Drake, Vol. II p. 434]. This is another mechanism for keeping growth in check.

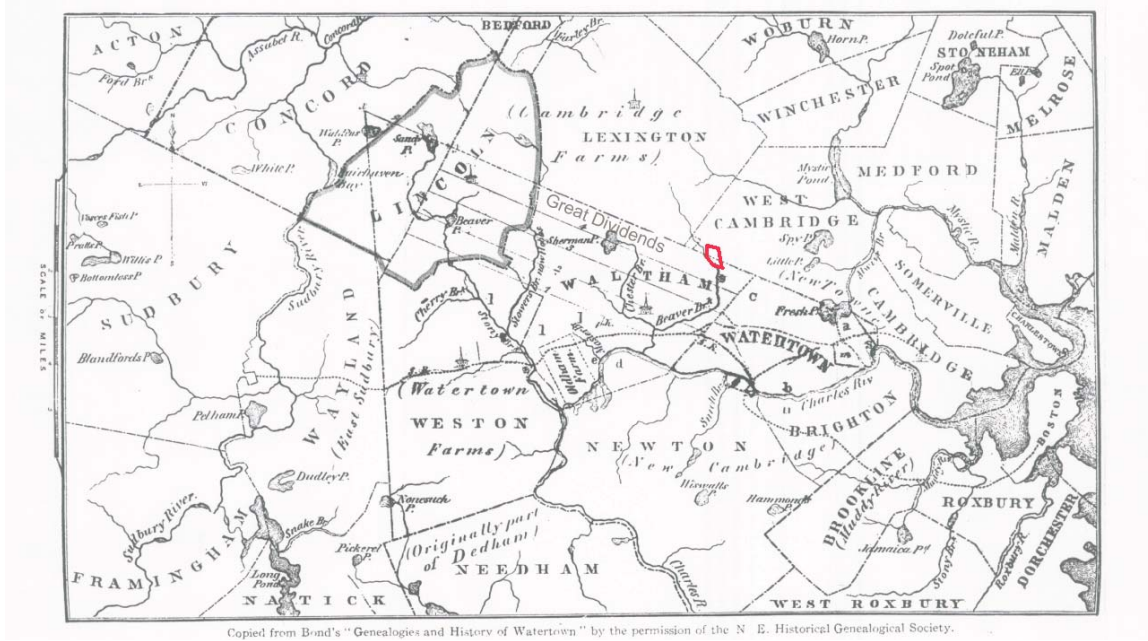
Colonization

By the time that the British colonists arrived in Watertown in 1630 the Indian population had been decimated by disease. The colonists found the land to be park-like with open meadows and little dense forest.

The original town of Watertown was much larger than today, it formed a large triangle essentially from the Charles River to Arlington and from Cambridge to Sudbury (Figure 2 [Whitney]). It included what is today Waltham, Weston, Belmont and parts of Cambridge. The economy was built on agriculture, with livestock at the core. To feed the livestock a supply of grass was critical. High quality pastureland was found along the Charles River and in smaller meadows scattered throughout the town. Present day Rock Meadow was part of one of those meadows. The actual extent of the original meadow continued to the northwest into Lexington and what was then West Cambridge (later renamed Arlington).

The large quantity of rocks made this area a poor one for cultivation, but the high moisture content in the soil makes this an excellent place to grow grass for livestock. The importance of these meadows is born out in the construction of a road “to fetch hay from Rock Meadow and the remote meadows” in 1640 [Betts, 1985, p. 139]. Originally

Figure 2 Original Boundaries of Watertown and position of Rock Meadow (red)



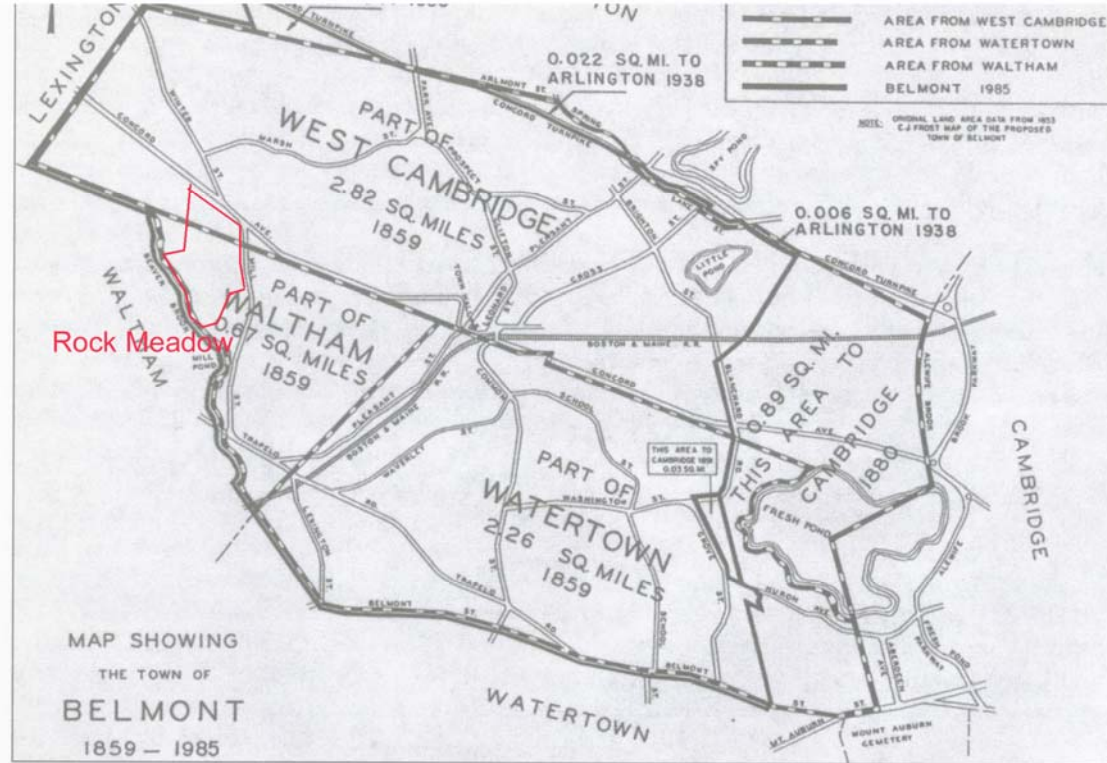
called “Cart Path to the Meadows,” it was later named North St. and is now known as Trapelo Rd.

It was not until July of 1636 that land containing Rock Meadow was divided into lots by Watertown. This division was referred to as the Great Dividends [Drake, Vol II, p. 434]. These were a series of four swaths of land, referred to as squadrons, 160 rods wide (½ mile) and six miles long that ran northwestward along the northern border of the town. The use of the land in these squadrons was primarily as pasture.

South of the meadow along Mill St., Beaver Brook was dammed up in two places to form Mill Pond and Duck Pond (originally Handyside Pond). A fulling mill was constructed in 1662 by Thomas Agar and a gristmill in 1690 by Robert Rider [S. A. Drake, vol. I, p252]. As these original mills aged and collapsed, other mills replaced them, including J. S. Kendall’s grist mill (originally built in 1829), a saw mill and finally Plympton’s satinet factory, which was destroyed by fire in 1848 [Betts, 1985, p.117]. The water that followed through Rock Meadow played an important economic role in the area.

Over the years some of the land of Watertown was broken up and reallocated to other towns. In 1859 that the Town of Belmont was created with land from Watertown as well as bits of Waltham and West Cambridge (Arlington). The effort was funded in a large part by the wealthy merchant John Perkins Cushing. The town was named after his estate, ‘Bellmont’. [Baldwin, p. 25]. The map in Figure 3 shows how neighboring towns were divided to create Belmont.

Figure 3 Composition of the Town of Belmont [Belmont, p.10]



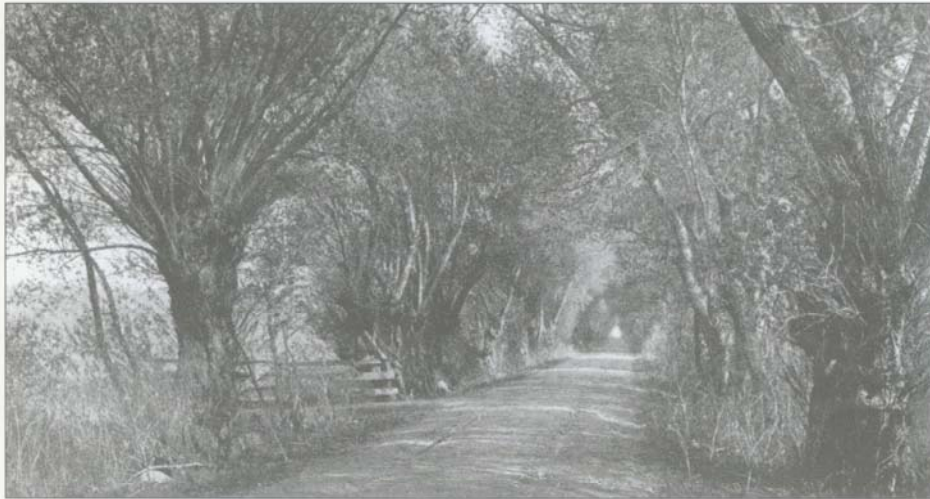
Early Belmont Years

In the early years Belmont was an agricultural community supplying produce to the markets in Boston. As transportation improved many of these farms were given over to housing. The prime real estate was on the hillsides facing Boston, a way to be in the county, yet keep an eye on the city. Rock Meadow was on the opposite side of the slope and thus was not prime real estate for development. Also, as mentioned above there is a large amount of water in the soil, which complicates construction, especially of a typical New England house with basement.

In 1803, Concord Ave. was constructed as a turnpike to link Concord and Cambridge. This is the route that was walked by Ralph Waldo Emerson for his trips into Harvard Square in the middle of the 19th century [Baldwin, p. 34]. The section from Mill St. to the Lexington line was planted with rows of pollarded willows and made for a refreshing bit of shade on the road (Figure 4). Some willows remain in this area on the south side of Concord Ave., but they are showing signs of age.

In his 1906 book “Birds of the Cambridge Region” naturalist William Brewster described the area as “Although for the most part open and grassy, it contains many swampy thickets, several tracts of low-lying maple woods and a few wooded ridges and marsh islands.” Among the birds noted in this area were bobolinks, red winged blackbirds and Maryland yellow-throats. While the blackbirds are still relatively abundant today, the bobolink population has declined significantly.

Figure 4 Picture of Willows along Concord Ave [Belmont, p. 16]



In 1803, the Cambridge and Concord Turnpike Corporation laid out a turnpike between Cambridge and Concord. The turnpike ran right through the center of what was to become the town of Belmont, along what is today Concord Avenue. The upper end of the road, between Mill Street and the Lexington town line, was known as the Willow Road and is shown in this c. 1890 picture.

Further testament to the beauty of this area was the declaration by James Russell Lowell of the Mill Pond and its waterfall as “one of the loveliest spots in the world.” [Baldwin, p. 36] These are found in the northern section of the Beaver Brook Reservation, which is just to the south of Rock Meadow. In fact, Chas. Eliot was so impressed with the beauty of this area that he selected Beaver Brook as the first reservation created by the Metropolitan Park Commission in 1893 [Hutchinson and Steinberg, p. 5].

Land Ownership

The 1871 Middlesex County Atlas indicates that J. B. Kendall had a residence on Mill St. at the south end of the meadow. J. S. Kendall was the next residence to the south. The Belmont town atlas from 1898 shows a portion of Rock Meadow under the ownership of McLean Hospital (25 acres, formerly belonging to J. B. Kendall) and a larger northern section (55 acres) owned by Edward and Mary Brown (Figure 5). An “A. Brown” (possibly Adolphus) sold this section to McLean Hospital in 1908 [M. Velie, p. 4]. To the south of this McLean property was the 28 acre farm belonging to J. S. Kendall. This plot was later developed for housing as Kendall Gardens in the late 1920’s.

In the 18th century, the land in the area of Rock Meadow was owned by Josiah Shattuck (1715-1779), descendant of William Shattuck, one of the original 1630 settlers of Watertown [Drake, Vol. I, p. 253]. As was the case in many communities, there were many marriages between neighbors, thus despite the different names on the properties they all derived from a common original owner. In this way both the Kendalls and Browns can be traced back to the Shattucks [Betts, 1974, pp. 92-3].

The 1898 Belmont Atlas also shows the location of drainage channels on the Brown's land emptying into Beaver Brook. This indicates that at least a portion of the land may

Figure 5 Image from 1898 Belmont Town Atlas of Rock Meadow Area



have been used as cropland, not just as pasture.

McLean Farm Years 1890's to 1945

By 1908 the McLean Hospital, on the east side of Mill St had purchased the whole of Rock Meadow. At this time the land included a farmhouse, two stables, a stone crusher, cow barn, a dairy barn, silo, two piggeries and a pump house. The hospital was self-sufficient in many ways having its own laundry, bakery, and mechanical shops [Betts, 1985, p. 115]. Additionally it had the ability to generate its own electricity and grow much of its own produce. From Rock Meadow, then referred to as McLean Farm, came dairy and pork products and, presumably some produce. The McLean wells, which supplied water to the hospital, were also in the meadow. The aerial view in Figure 6 from 1939 shows the location of the farm structures and the relative lack of trees.

Figure 6 1939 Aerial Photo of Rock Meadow. [Thanks to Debbie Hartman/Friends of Rock Meadow for image.]



The McLean farm was in operation until 1944 or 45 when it was shut down due to a labor shortage resulting from World War II. At that time there were 150 cows on the property producing 500 quarts of milk per day [Betts, 1985, p. 115]. The stable, a fire proof brick structure still remains, although it is not on the current Rock Meadow conservation property. The Farmhouse was recently taken down and only a few foundations of the other buildings remain today.

During the years that the McLean Farm was in operation, other farmlands were being converted into housing. That this did not happen with the McLean property may be due in part to the desire for self-sufficiency of the hospital operations, keeping the land as a working farm. It is worthy of note that Frederick Law Olmsted had recommended the Belmont site for the McLean Hospital and the landscaping there was based on his design [Betts, 1985, p. 115].

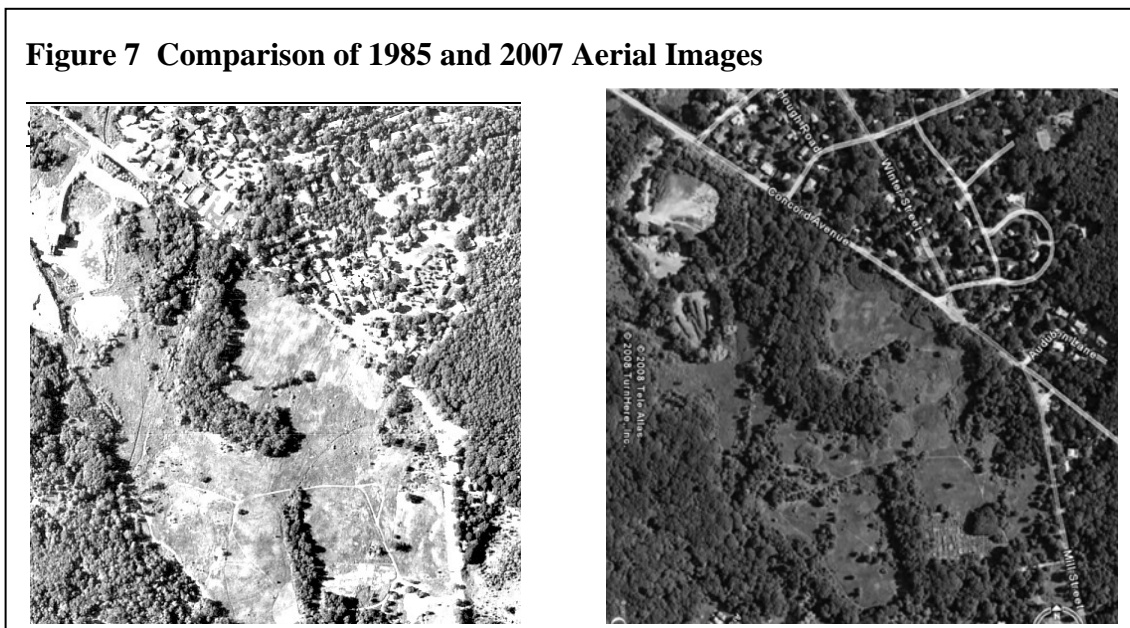
Town of Belmont Takes Ownership

The farmland lay fallow from 1945 to 1968 when the Town of Belmont purchased the land from the Hospital. The cost was \$555,800 with the United States Bureau of Outdoor Recreation funding half of the cost and the Massachusetts Department of Natural

Resources pay another quarter [Hutchinson and Steinberg, p. 6]. So for about \$139,000 the town purchased the 70 acres of Rock Meadow. (The town also owns some additional adjoining acreage, which has been used for the town incinerator (1959-1973) and transfer site.) The town's Conservation Commission was given the responsibility of managing the meadow.

In 1969 the town's Victory Gardens community gardening plots were moved to Rock Meadow, near the parking lot at the south end of the property. Other public uses of the meadow are best described as passive recreation, consistent with this being conservation land. These include hiking, birding, cross-country skiing, picnicking, dog walking (on leash) and mountain biking (on trail). There was a ball field was installed along Mill St., but according to Town Historian Richard Betts, it never really got used much. Only a section of the backstop remains today.

The goal of the conservation commission was to maintain the open field character of landscape. In general, acreage of open field habitat in the State of Massachusetts has decreased markedly as abandoned farms have either reverted to forest or been converted to housing or commercial development. Open field and the related forest edge habitats provide homes and food for many birds and other animals that forest cover alone can not supply. Mowing is the most practical means for keeping shrub growth under control in the absence of fire or heavy grazing. However, over the years the frequency of mowing in Rock Meadow decreased and succession, the conversion of open fields to forest, began to take hold. An examination of aerial photos from 1939, 1952, 1985 and 2005 shows only minor forest/shrub expansion until the 2005 image where the wooded portion has grown significantly (Figure 7).



The expansion of the wooded area was noted in a Landscape Institute independent project by B. June Hutchinson and Ann G. Steinberg in 1982. They found when they compared images as late as 1974 with field observations there was a decrease in the definition

Figure 8 Increased Tree and Shrub Layers



- Oriental bittersweet and thickened shrub layer

- Trees encroaching on meadow
- Occasional mowing not sufficient to control succession



between the fields and the wooded portions. This increased shrub layer consisted not only of native species like sumac and dogwood, but many invasive species like buckthorn, barberry and honeysuckle (Figure 8).

Restoration/Rehabilitation

In 2001 the conservation commission and mowing contractor agreed that a new plan was needed to reverse the encroachment of shrubs and woodland into the meadow. The Conservation commission secured a US Fish and Wildlife Service grant to pay for a site survey and management recommendations from Mass Audubon Ecological Extension Service in 2006. The report was filed in February 2007 and documents the extent and nature of the expansion of the tree and shrub layers in the meadow [Collins, J, 2007.]. Besides the invasive shrubs listed above, large groups of very invasive tree-of-heaven (*Ailanthus altissima*) were found along with the native black cherry (*Prunus serotina*). Over 70 management units were identified in the report. The report gave recommendations about what species to remove and how; and ways to maintain the meadow once it was cleared. These recommendations would expand the meadow/grassland space from about 18 acres to 32 acres of the 70 acres of conservation land.

A second grant from the Wildlife Incentives Program (WHIP) was won that provides technical and cost-share assistance to landowners to protect or restore valuable ecosystems and wildlife habitat. This grant was calculated to cover 75% of the cost of renovating the meadow, removing invasive species and improving wildlife habitat over a ten-year period. The value of the grant over the 10 years is estimated to be \$51,855. With this grant the average yearly cost to the town will be on the order of \$1,700,

significantly less than the 2005-6 cost of mowing at \$3,000 [Article 13 Presentation]. Once the meadow is reestablished and the invasive plant populations are brought under control annual maintenance costs should drop as mowing need be done every second or third year on a rotating basis (each year a different area gets mown).

With the unanimous approval at a special town meeting for the town's share of the costs, the grant was approved. By August 2007, renovation of the meadow was underway. As can be seen in Figure 9, in a relatively short time significant changes in the amount of tree and shrub cover have been made [NRCS, 2007].

Figure 9 April 2008 Images, after restoration has begun.



While reestablishing the open meadow was an obvious first choice, the grant process did not allow for monies to be used anyway the conservation commission wished. The grant is focused on habitat restoration, not creating a new type of habitat, a park, or just continuing maintenance operations.

The citizen led group, Friends of Rock Meadow, plays an important role in the support and management of the site. In addition to fund raising and supplying volunteers, citizen's groups can apply for grants that government agencies alone are not eligible for.

Other groups that help support Rock Meadow include Friends of the Western Greenway and New England Mountain Bike Association. These groups along with the town secured a Recreational Trail Grant from the Massachusetts Department of Conservation and Recreation which will be used to add a sign on the road, kiosks, trail map creation, benches, rebuild 2 bridges and add a boardwalk through the wetland area trail. [Personal communication, Debbie Hartman, April 8, 2008]

Western Greenway

The significance of the habitat value of Rock Meadow is increased by the other parcels of conservation and open land in the area. Development of the adjacent properties of the McLean and the Metropolitan State Hospitals has included setting aside significant portions as open space. Also nearby is the Habitat Wildlife Sanctuary operated by Mass Audubon and the Beaver Brook Reservation (DCR). These properties and several others taken together are referred to as the Western Greenway, amounting to more than 1,000 acres of contiguous open space.

Open areas and conservation lands that are connected are much more effective wildlife habitats than the same amount of land distributed in separated patches. This is one of the principles of landscape ecology. The open area that encompasses Rock Meadow, the Audubon preserve, McLean Hospital open land, and the immediately adjacent open land

Figure 10 Western Greenway Trail Marker



in Lexington and Waltham have always comprised an important stop on the Northeast Flyway for migrating birds [Belmont Open Space and Recreation Plan, 2001].

The Greenway is not a single legal entity. It is a coalition land trusts and conservation groups from Belmont, Lexington and Waltham working together to preserve this linkage of open spaces as wildlife habitat and for the enjoyment and appreciation of human visitors. The Greenway does not have a unified program for use or historic preservation; each property is managed individually. There is

a plan to construct a 12-15 mile trail system that links all of these spaces. Some trails are already marked out and can be seen in Rock Meadow (Figure 10). In other parcels permission to allow public access still needs to be worked out. By creating a recognizable entity, the coalition, led by Friends of the Western Greenway, is in a stronger position to negotiate for access and preservation of open space.

Current and Future Use

Although Rock Meadow is conservation land and will not be developed, there is still some competition of interests among the various users. Those primarily concerned with bird habitat and nesting would not welcome intrusion by humans and free roaming pets. Dog owners are looking for a place to let their pets run. Hikers and walkers may not be at ease sharing trails with bicycles. And cyclists may find it difficult to stay on trails and minimize soil compaction that leads to erosion. It is one of the Conservation Commission's job to consider the needs of the community in light of the conservation goals for the meadow.

In May 2001 it was reported that a rare shrimp-like crustacean, the Mystic Valley amphipod (*Crangonyx aberrans*) was found in two places within Rock Meadow. This species is of special concern under the Massachusetts Endangered Species Act. This discovery could provide an increased measure of protection for the wetlands in Rock Meadow. [Belmont Citizens Forum, May 2001, p.7]

Historical preservation also leads to conflicts. It might be interesting to maintain

Figure 11 Stumps of the invasive Tree of Heaven along dairy barn foundation



fragments of foundations of the old farm structures as a reminder of the many years that Rock Meadow was a working farm. As explained by Mary Trudeau, of the Belmont Conservation Commission, invasive trees and shrubs are well rooted into these foundations and if not removed they would provide a seed source for reinfestation of the meadow (Figure 11).

Preservation of History

While Rock Meadow is and has been an open meadow for many hundreds of years, it still has a history that is worthy of recalling, both human and natural. The human history involves use of the meadow to support the agriculture of the early colonists in the 1630's. This is followed by continued agricultural use including the keeping of pigs and cattle, and as part of the farm that made the McLean Hospital self-sufficient. The natural history of the site includes the geology, being on a ridge of volcanic and plutonic rock next to a fault line. The site also shows evidence of succession, how a site will convert to woodlands in the absence of disturbance, be it natural or due to human activity. Also the nature of the wildlife on the site shows how different animals require different habitats to survive. The role that wetlands play in controlling floods could also be highlighted.

In developing a plan for preserving the history it is not necessary to select one aspect to freeze in time. Here, considering the broad time span, preservation of selected artifacts, or symbolic representations of the artifacts could serve to recall the past. A sequence of kiosks or signboards could point out to visitors what had existed in the past, as well as explaining current processes at work. By carefully selecting elements for preservation, conflicts with other goals, such as controlling invasive plants, can be minimized. Looking at this property in the context of the Secretary of the Interior's Guidelines for Treatment Cultural Landscapes, Rock Meadow is probably best considered as a candidate for rehabilitation. Where there is a "need to alter or add to a cultural landscape to meet continuing or new uses while retaining the landscape's historic character."

Conclusion

From the information gathered it appears to me that the reasons for Rock Meadow retaining its open character for the 400 years after colonization may be attributed to four main factors. The first factor is location, not being in or facing the Boston Basin made it a less attractive residential site. Second is geology, not an easy place to build. The third is economics, it provided a key ingredient to early agriculture – grass. And lastly, aesthetics, the area was recognized and revered by the likes of Emerson, Lowell, Olmsted and Chas. Eliot. It was fortunate that the McLean Hospital held the property for so long and that the Town of Belmont was able to purchase the property for conservation purposes. Prior to colonization, the open nature was maintained by fire, mostly by Native Americans, and beaver activity resulting in the downing of trees and flooding. All of these factors have conspired to give us a place where we can see nature co-existing with human activity.

Thanks

I would like to thank the following people for helpful information regarding Rock Meadow used in this report.

Richard Betts, Town Historian

Debbie Hartman, Friends of Rock Meadow

Mary Trudeau, Belmont Conservation Commission

Roger Wruble, Mass Audubon

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