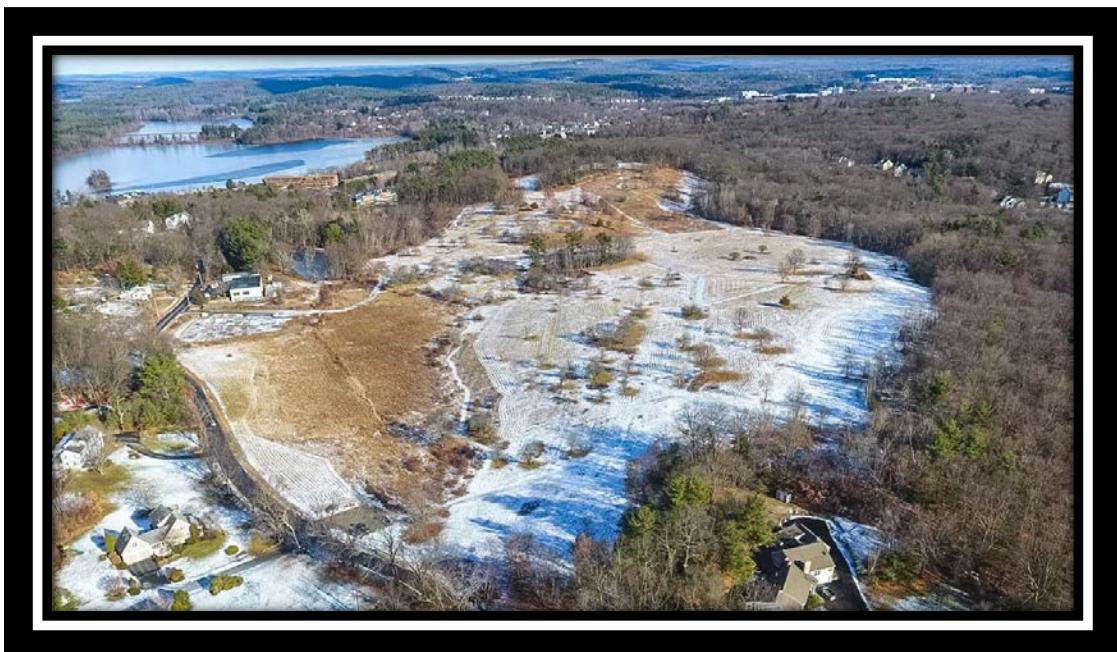


Breakneck Hill Conservation Land Management Plan

Presented to the Town of Southborough
Conservation Commission

Updated May 2017



Southborough Stewardship Committee:
Yun Gao, At-large Member
Freddie Gillespie, Open Space Representative
Jim Gorss, At-large Member
Joyce Greenleaf, Chair, At-large Member
Michele Simoneaux, Conservation Commission Member

Table of Contents

Table of Contents	3
Introduction	1
2017 Stewardship Committee Action Items	3
Authorized Uses	5
Conservation Mission Goal: Creating Grasslands	6
Mow Fields B, C, and D As Soon After August 1 As Possible.....	7
Post and Close Trails That Bisect B, C, and D between April 1 st and August 1.....	7
Remove Trees from B, C, and D.....	7
Monitor and Address Invasive Plants.....	7
Manage and Install Bird Boxes.....	8
Remove Thatch After Mowing at Least Every Other Year.....	8
Assess Rocky Outcrops.....	8
Conservation Mission Goal: Creating Pollinator Habitat	9
Mow Strategically to Create Habitat.....	9
Continue to Develop the Interpretive Trail.....	10
Continue to Participate in and Support the Bumblebee Survey.....	10
Explore Installing Bee Nest Sites.....	10
Conservation Mission Goal: Conserving Wetlands and Vernal Pools	11
Delineate Wetlands to Better Protect Them.....	11
Identify Vernal Pools.....	11
Educate the Public About These Sensitive Ecological Resources.....	12
Conservation Mission Goal: Creating Early Successional Habitat (Young Forest and Shrublands)	13
Manage Areas for Shrubs and Young Trees.....	13
Inventory Resident Birds.....	13
Install Kestrel Boxes.....	13
Monitor for Invasive Plants.....	13
Conservation Mission Goal: Reducing Invasive Plants	14
Early Detection and Rapid Response.....	15
Mowing Strategically.....	15
Treating Invasive Plants.....	15
Restore the Area Upland to the Replicated Wetlands.....	15
Identify Funding.....	16
Conservation Mission Goal: Assessing the North & South Pastures	17
Phase 1: Delineate the Wetlands Within the Pastures.....	17
Phase 1: Mow.....	17
Phase 1: Control Invasive Plants.....	17
Phase 2: Manage the Pastures.....	17
Phase 2: Prepare Options and Invite Community Input.....	17
Passive Recreation Mission Goal: Maintaining Trails	18

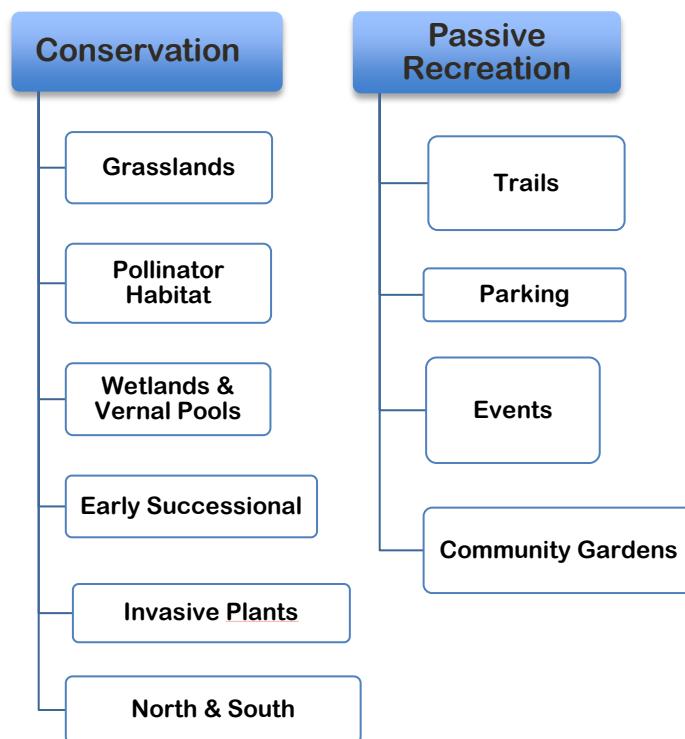
Mowing Trails.....	18
Address Trail Erosion and Footbridges as Needed.....	18
Post Signs for Trail Closures, Rules.....	18
Assess and Restore Access Trail from Woodland Road.....	18
Update the Trail Map and Consider Naming the Trails.....	19
Passive Recreation Mission Goal: Provide Year-Round Parking	20
Seasonally Mowing the Lot Edges or Marking Them for Plows.....	20
Monitor the Lot Condition.....	20
Passive Recreation Mission Goal: Sponsor & Co-Sponsor Events	21
Passive Recreation Mission Goal: Community Gardens	22
Ensure, through two-way communication, that the management plan for the property is compatible with Community Gardens.....	22
Other Plans.....	23
Updating and Posting the Rules.....	23
Identifying Those Authorized to Work on the Property.....	24
Summary of Actions by Season	25
Challenges	26
Challenge: Limited Funding	26
Challenge: Identifying Volunteers	26
Challenge: Respecting and Balancing All Aspects of the Mission.....	26
Appendix A: Map of Breakneck Hill Conservation Land with Estimated Acreage.....	27
Appendix B: Recommendations from Mass Audubon for Sections B, C, and D, September 2015	28
Appendix C: Highlights of Completed Action Items Calendar Year 2016.....	29

Introduction

The Southborough Stewardship Committee is pleased to present this plan for the Breakneck Hill Conservation Land in alignment with its mission:

To support the Conservation Commission by providing conservation-based stewardship of the Breakneck Hill Conservation Land, balancing multiple conservation and passive recreational uses.

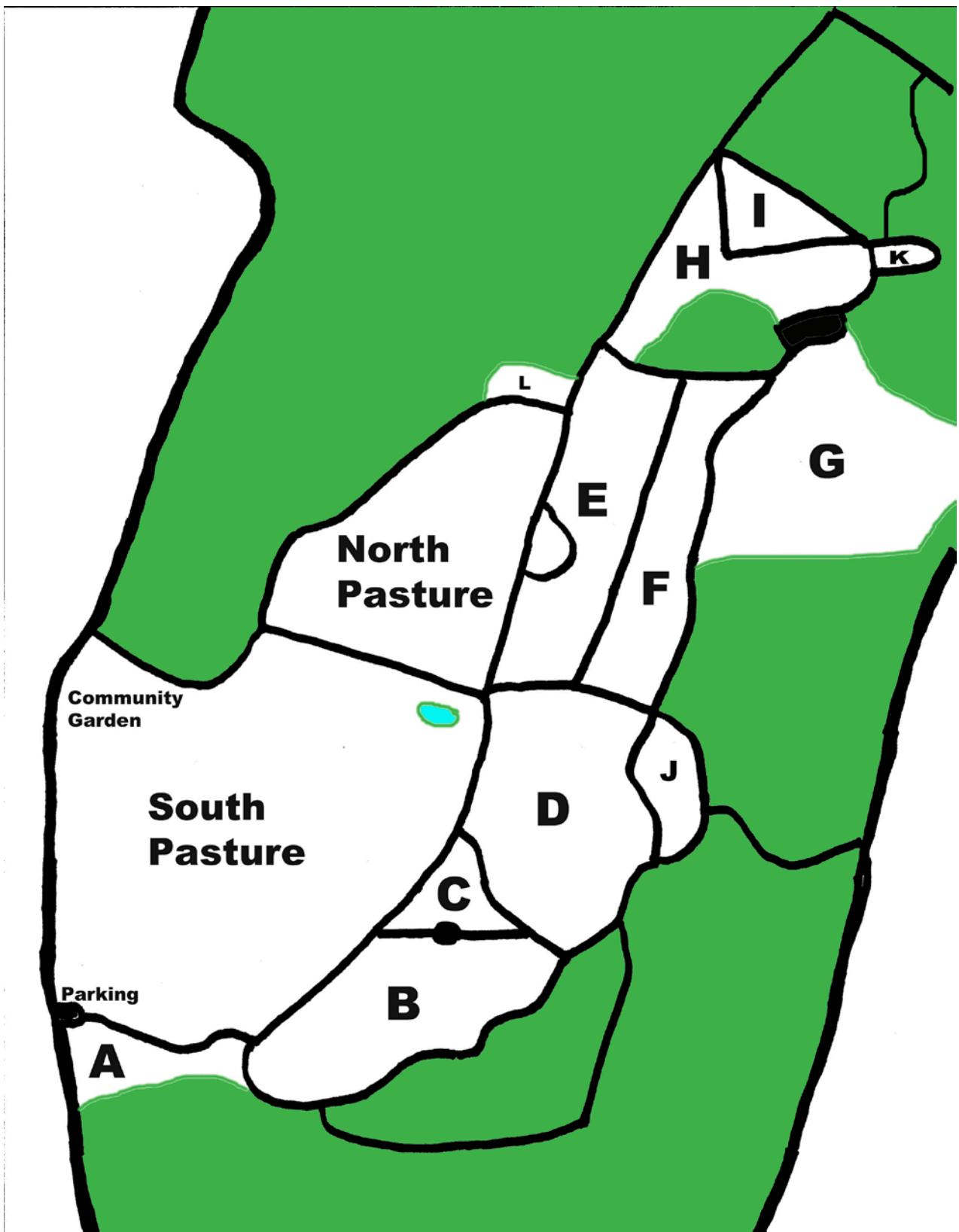
In addition to being aligned with our mission, we organized the plan by conservation and passive recreation goals:



The plan also delineates some actions concerning the property's stewardship as well as challenges. The Stewards strived to provide appropriate context and rationale for the actions in this plan.

The property is about 90 acres. Appendix A includes an aerial view of most of the property, overlaid with estimated acreage for certain parts. The following page includes a reference map also limited to certain parts of the property.

Although this plan reflects the management practices the Stewards have employed since the committee was established in 2005, it also elevates attention to signage and public education, and it incorporates the recommendations from Mass Audubon's report of September 2015 (see Appendix B).



2017 Stewardship Committee Action Items

Below are the action items that will guide the 2017 Stewardship agenda and are dependent on funding. See appendix C for an accounting of the 2016 actions.

Activity	Mission	Notes	Cost	Funding Source
Mowing Fields B, C, & D as soon after 8/1 as possible	Conservation	Recommendation of Massachusetts Audubon for grassland nesting birds	\$4,200 (Est'd)	Cons. Budget
Annual mowing remaining fields, leaving some areas unmowed for habitat (late season)	Conservation	See also notes on expanded bumblebee survey	TBD	Can Cons. Waive fees?
Present Notice of Intent for Permission to cut loosestrife in 2017 and mow in the wetlands annually	Conservation	Twin Pines estimate 12/16; this is critical to make the grasslands attractive to grassland nesting birds and a recommendation of Massachusetts Audubon	\$5,000 Proposed	Proposed CPA
Maintain Trails	Conservation Recreation	Volunteer-based	NA	NA
Post & Close trails bisecting B, C, & D between 4/1 & 8/1	Conservation	Signage to educate and protect grasslands during nesting season	Est'd \$600	Cons. Budget?
Remove trees from B, C, & D (March 2017)	Conservation	Twin Pines provided est 12/16; work approved and completed 3/17	Invoice pending @\$5,850	Cons.
Remove Invasives; Year 1 of a 3-year plan: Year 1 \$15,000 Year 2 \$4,800 Year 3 \$2,400	Conservation	Land Stewardship Inc., estimate from 8/2016; Grant for \$2,250 for 2017 from CISMA	\$15,000 proposed	Proposed CPA CISMA
Remove downed Trees from North and South Pastures	Conservation	Estimate from Twin Pines 12/2016 \$27,500	Est'd \$27,500	Proposed CPA
Manage & Install Bird Boxes	Conservation Recreation	Rec'd kestrel box from State ornithologist 8/16, expecting to be installed by an Eagle scout	Donated	NA
Assessment & Outreach for North and South Pastures	Conservation Recreation	Rec'd \$5,000 grant from CPA in Administrative Funds for this activity; Assessment will guide us and be used in public outreach	\$5,000	CPA Admin
Additional plantings along the Interpretive trail	Recreation Conservation	Assessing and replanting where invasives were removed at trailhead <input type="checkbox"/>	Est'd \$5,000	Proposed CPA
Develop a volunteer corps for pollinator gardens	Recreation Conservation	Ongoing	NA	NA

Continue to Support the bumblebee survey to monitor the varieties of bumblebees on the property	Recreation Conservation	Ongoing since 2015 with Dr. Gegear of WPI + students and locally trained volunteers	NA	WPI Students and locally trained Volunteers
Expand the Bumblebee Study to include Purple Loosestrife cutting and installation of a Bumblebee garden	Recreation Conservation	With Dr. Robert Gegear of WPI and his students; Will be requesting permission from ConCom	NA	Dr. Gegear has grant funding
Repair parking lot at trailhead	Recreation	Address mud pit preventing full utilization of the lot	Est'd \$1,000	Cons. Budget?
Install 3-5 native bee nest sites	Conservation	Ongoing with an Eagle scout as of fall 2016, presented to the Stewards on March 30, 2017; Stewards voted to support	Volunteer	NA
Inventory resident birds	Conservation	Ongoing via Things with Wings blog and other	NA	NA

Authorized Uses

To guide the Conservation Commissioners as well as the Stewards, Breakneck Hill Conservation Land, the Conservation Commissioners shall take action in response to activities outside the authorized uses of the land. Authorized uses by the public are limited to passive recreational uses on the trails only except when the ground is covered with snow. When snow conditions allow, cross-country skiing, snowshoeing, and off-trail recreation is allowed.

Unauthorized uses and prohibited activities include, but are not limited to:

- Off-trail uses when there is no snow cover
- Motorized vehicles
- Horses
- Fires
- Alcohol consumption
- Dumping
- Removal of vegetation, wood, soil, animals, and the like

The Stewardship will review requests for unauthorized uses and make a recommendation to the Conservation Commission. The Conservation Commission will not approve any unauthorized activities until it has a recommendation from the Stewardship Committee.

Conservation Mission Goal: Creating Grasslands

Around 2004, the Conservation Commission entered into an agreement with the Breakneck Hill Cow Fund so the cow fund could get a grant from the National Resource Conservation Service (NRCS) through its Grassland Reserve Program (GRP). This grant funded the removal of invasive plant species that had taken over much of Breakneck Hill Conservation Land. Although the cow fund intended to hay Sections B, C, and D for use of the herd, haying was not feasible.

In exchange for the funding, the town had to agree to keep sections B, C, and D (about 9.6 of 90 total acreage) open and manage it for grassland birds for 30 years. The Conservation Commission charged the Stewardship Committee with overseeing and managing the project and the land, except for the North and South Pastures. The cow fund entered into a formal licensing agreement with the Town for grazing the herd on those pastures.

In 2015 or early 2016, the Cow Fund dissolved and was allowed to exit its contractual obligation with the NRCS.

The Stewards noted over time that the sections managed as grasslands have attracted grassland birds, which are in global decline. After 10 years managing those 9.6 acres as grasslands, the Stewards have determined that the best use of sections B, C, and D continues to be managing for grassland birds, per the original obligation made to the NRCS, which funded the work that created the grasslands. Furthermore, protecting natural resources by managing and creating habitat for at-risk species reflects Stewardship's mission for the conservation land. Grassland birds are in decline because their habitat is disappearing statewide, regionally, and globally. As of May 2016, another Southborough field supporting nesting bobolinks is in front of the Conservation Commission for conversion to housing lots.

The Stewards are focusing on grassland species including savannah sparrows and bobolinks, among others. We believe the savannah sparrows have nested on the property and have seen bobolinks visiting but not yet nesting. In April 2016, visitors reported seeing a pair of American kestrels there. These birds are small falcons that take advantage of grasslands. Both Mass Audubon and the State Ornithologist at Mass Wildlife were thrilled to learn that about the kestrels. They recommend putting up kestrel boxes that they will supply and help the Stewards monitor.

In 2015 the Conservation Commission hired Mass Audubon for advice on the property and the grassland birds. The Stewardship committee is committed to following through on those recommendations to provide habitat the bobolinks and other grassland birds will use for nesting. We note below those actions that reflect Mass Audubon's recommendations.

Mow Fields B, C, and D As Soon After August 1 As Possible.

The timing allows grassland birds to fledge safely and promotes grassland habitat.

Mass Audubon
Recommendation

Post and Close Trails That Bisect B, C, and D between April 1st and August 1.

The trail closures create more contiguous grasslands that are attractive to grassland birds and deter dogs and humans from disturbing the grassland birds. The closed trails represent about 1/10th of a mile (the property has at least 3 miles of trails). Signs will alert and educate visitors. A sign might include the following:

Trails Closed
April 1- August 1
To Protect Nesting Birds

This is a Sensitive
Natural Resource Area

Mass Audubon
Recommendation

Remove Trees from B, C, and D.

Removing trees also makes these fields more attractive to grassland birds because trees provide perches for avian predators. Tree removal is best accomplished during the winter months when the ground is frozen because it is easier and less damaging to move the equipment. The downed trees will either be removed from the property entirely or used to create brush piles, which create habitat, outside of the grasslands. All are common species found elsewhere on the property.

Mass Audubon
Recommendation

Monitor and Address Invasive Plants.

The grasslands were recently assessed to be 98 percent free of invasive plants. However, maintaining that rate of success is a challenge. For example, bedstraw, an agricultural weed that contributes to thatch, may be present. The Stewards will research appropriate management methods.

Manage and Install Bird Boxes.

The Stewards have identified a volunteer who builds and maintains blue bird boxes. The Stewards will also pursue the offer from Mass Audubon for Kestrel boxes.

Remove Thatch After Mowing at Least Every Other Year.

Thatch detracts from habitat value to grassland birds and also promotes forbs over grasses. This should happen every other year after the mow and could involve volunteers such as Scouts or the mowing contractor.

Mass Audubon
Recommendation

Potential
Eagle Scout
Project

Assess Rocky Outcrops.

Mowing cannot always address the woody vegetation among rocky outcrops. These areas should be monitored and addressed as needed by manually removing or spot treating woody vegetation or resprouted invasive plants.

Mass Audubon
Recommendation

Conservation Mission Goal: Creating Pollinator Habitat

Pollinators are in serious trouble. In 2014 President Obama called for a national strategy to protect their health. The strategy that emerged includes goals of increasing monarch butterfly populations and restoring or enhancing land for pollinators through public and private actions. It also led to a campaign for a million pollinator gardens to be registered.

The Stewards have been managing for pollinators at Breakneck Hill for over a decade:

- **Monarch Butterflies.** After the initial clear-cut (funded by the GRP) and herbicide application to eliminate the invasive plants, the Stewards noted an absence of milkweed among the natives taking hold. Monarch butterflies cannot survive without milkweed because their caterpillars only eat milkweed. The Stewards successfully reintroduced milkweed.
- **Bumblebees.** Since 2015, the Stewards have worked with Dr. Robert Gegear, a biology and biotechnology professor from Worcester Polytechnic Institute, to help identify and understand the local bumblebee population. Through trained volunteers observing and filming bumblebees, Dr. Gegear is able to contribute to conservation efforts. This work has involved not only Dr. Gegear's graduate students, but also local volunteers and Stewards. Dr. Gegear presented twice in Southborough, educating the community about the importance of bumblebees and their role in pollination.
- **Wildflower Hill.** The Stewards have designated Section A (1.3 acres) as Wildflower Hill. It has been seeded, planted, and managed to encourage native wildflowers, which in turn supports native pollinators (supported through Community Preservation Act funds, volunteers, and pro bono work). This section will feature an interpretive trail with signs planned for 2016.

To further create pollinator habitat, the Stewards will

Mow Strategically to Create Habitat.

The mowing schedule for the fields E, F, G, H, I, J, and K is as late in the season as possible. This approach will ensure late season habitat and food sources for pollinators and create places for pollinators to overwinter. Furthermore, not mowing certain sections (as determined by the Stewards each year) preserves habitat for overwintering pollinators within the stalks and stems left behind.

Continue to Develop the Interpretive Trail.

This pre-approved project has been underway for some time and provides not only nectar and pollen for native pollinators but also beauty for visitors. Additional steps for this area include

- **Protect the native pollinator gardens with fencing.** Unfortunately, the fencing was stolen in March 2016, leaving the gardens accessible to dogs and others.
- **Educate with signs.** The interpretive trail and gardens create a welcoming landscape to visitors. Signs could explain the value of native plants and pollinators.
- **Identify volunteers.** The native garden needs watering and weeding to get established.
- **Register the garden.** The gardens can be registered as part of the million pollinator garden challenge.



Continue to Participate in and Support the Bumblebee Survey.

Per arrangement with the Stewardship Committee, Dr. Gegear and his graduate students are allowed to conduct their surveys off trail, which may result in some small, weed-wacked trails marked with signs. This effort could involve some placement of small flags on the property; the Stewards will post signs to educate visitors on their presence.

Explore Installing Bee Nest Sites.

Bumblebees and other bees that are important for pollination like to nest in warm, sheltered locations. Many of the nest sites are made with natural and recyclable materials that would not detract from the natural beauty of the conservation land and would provide further educational opportunities. This has potential for an Eagle Scout project.

Potential
Eagle Scout
Project

Conservation Mission Goal: Conserving Wetlands and Vernal Pools

Wetlands are areas where water covers the soil for all or part of the time. They are important because they are a distinct ecosystem, protect and improve water quality, and provide wildlife habitat. Vernal pools are a distinct form of wetlands. Breakneck Hill Conservation land features both wetlands and vernal pools.

Delineate Wetlands to Better Protect Them.

Wetlands that are jurisdictional under the United States Clean Water Act (33 U.S.C. §1251 et seq. (1972)), the Massachusetts Wetlands Protection Act (M.G.L., Chapter 131 §40) and the Southborough Wetlands Protection Act (Chapter 170) are located along the southern portion of the property, mainly near the South Pasture and on the eastern portion of the property, in a heavily wooded area adjacent to Woodland Road.

The wetlands have not been delineated by a wetlands professional and officially accepted by the Southborough Conservation Commission. Clearly delineating the wetlands will help the Stewards better define the total upland acreage of the North and South Pasture that needs to be managed so that the Stewards and the Conservation Commission can better plan and prepare for an informed and compliant approach to management of that area of the property. The wetlands complex to the east within the wooded portion of the property, near Woodland Road, can be excluded from the wetland delineation effort unless active management is planned for that area.

Identify Vernal Pools.

Vernal pools are temporary bodies of fresh water that have important habitat features for amphibians and invertebrates. Breakneck Hill is fortunate to have four certified vernal pools that contribute to the overall biodiversity of the property. The vernal pools are identified by the Natural Heritage and Endangered Species Program (NHESP), the division of the Massachusetts Division of Fisheries and Wildlife that certifies vernal pools, VP #4238, VP #4239, VP #4240 and VP # 4201. All vernal pools on Breakneck Hill were certified using the “obligate species” method, which means that obligate vernal pool species (species that cannot breed in any other kind of wetland) were confirmed to be present in those pools.

“Vernal pools are unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed. Vernal pools, also known as ephemeral pools, autumnal pools, and temporary woodland ponds, typically fill with water in the autumn or winter due to rainfall and rising groundwater and remain ponded through the spring and into summer.” (NHESP Website: <http://www.mass.gov/eea/agencies/dgf/dfw/natural-heritage/vernal-pools/>).

Educate the Public About These Sensitive Ecological Resources.

Educating the public promotes the conservation values in the Stewards' mission and helps to protect the vernal pools and other wetlands. To promote the education goals of the Mission, the Stewards will:

- **Identify Opportunities for Posting Signs.** Based on previous Eagle Scout projects, signs already provide information on wetlands and vernal pools on the property. There may be additional opportunities, which we will actively seek and would welcome suggestions from the public.
- **Sponsor or Co-Sponsor Events.** For example, the Stewards could plan an educational event aimed at families that features the importance of vernal pools during the spring when the breeding, egg laying, and metamorphosis phases of the life cycle of some amphibian obligate species will be popular with children. Another option would be to co-sponsor an event with another local group to help protect amphibians (frogs and salamanders) when they are trying to cross roads to enter their breeding pools on rainy nights above 42° F in the spring.

Conservation Mission Goal: Creating Early Successional Habitat (Young Forest and Shrublands)

Although the Stewardship Committee has *not* been actively managing for Early Successional Habitat, 8 of the 18 birds listed in *the Massachusetts 2015 State Wildlife Action Plan* (section 4 *Species of Greatest Conservation Needs in Young Forests and Shrublands*) have been documented at Breakneck Hill. Furthermore, some of these birds (American woodcock and American kestrel) require early successional habitat adjacent to grasslands, so Breakneck Hill is particularly well suited to help these species. In fact, the State Ornithologist was particularly excited to hear that an American kestrel was sighted at Breakneck Hill for several days in April and plans a site visit to offer habitat and nesting advice.

This habitat exists where the grasslands and meadows transition into the woodlands. Invasives and maturing vegetation are the two major threats.

The Stewards value this contribution to the conservation needs of the Commonwealth and commit to enhancing this critical habitat.

Manage Areas for Shrubs and Young Trees.

Rather than relying on this habitat to exist as a byproduct of our management practices, the Stewards must identify opportunities to ensure transition areas that feature shrubs and young trees continue to thrive on the property.

Inventory Resident Birds.

The Stewards already are aware that the property is attracting birds that depend on early successional habitat. Determining the extent to which the habitat at Breakneck Hill attracts species that rely on this habitat will inform further management decisions.

Install Kestrel Boxes.

With the guidance of the Massachusetts Division Of Fisheries and Wildlife, the Stewards will explore installing kestrel boxes.

Monitor for Invasive Plants.

As with other areas on the property, early detection and rapid response helps keep this property in the best condition possible for all the different habitats.

Conservation Mission Goal: Reducing Invasive Plants

The Commonwealth of Massachusetts recognizes invasive plant species as not only one of the greatest threats to the integrity of natural communities, but also as a direct threat to many native species. By their nature, invasives create monocultures, thereby damaging biodiversity and habitat and cascading to affect plants, pollinators, birds, and other wildlife. The Massachusetts Invasive Plant Advisory Group defines such plants as follows

Invasive plants are non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems.

The Stewards have been managing the invasive plant species in fields A through K at Breakneck Hill Conservation Land since 2005. The initial effort included the clear cut that was funded through the Grassland Reserve Program and treatment for invasive oriental bittersweet. It took 5 years to get the bittersweet under control. Recently those sections were declared 98 percent invasive free.

The Stewards recognize the importance of vigilance and persistence in sustaining that success rate. Some recent observations of invasives on the property are:

- In the interior of the meadows and grasslands, woody debris and rocky outcrops
- Two invasive buckthorns (mistakenly left in D) and those stumps will be treated after removal as part of tree clearing for grassland birds in sections B, C and D
- Woodland edges such as along transition to woods from trail at west side of H (oriental bittersweet, honeysuckle, autumn olive, buckthorn and multiflora rose).
- The backside of B and D has oriental bittersweet.
- At property adjacent to woods and sections A and B, increasing and varied invasives
- In section E, a new infestation of autumn olive
- The shrub at the trailhead adjacent to Parking lot is engulfed with oriental bittersweet.
- Bedstraw, an agriculture weed, has an increased presence on the property.

The addition of the North and South Pastures present particular challenges for invasive management. Those pastures are addressed in the next section.

Two common and effective practices for invasive management are mowing and spot treatments with herbicides. The Stewards have employed both because mowing alone is not enough. We are committed to using as few herbicides as possible and to only spray targeted plants. We have hired only professional, licensed applicators who have been highly recommended by conservation organizations.

We continue to look for non-chemical treatments and stay abreast of latest information. To that end, the Stewardship Committee is joining the Sudbury Assabet Concord River (SuAsCo) Watershed Cooperative Invasive Species Management Area (CISMA).

Early Detection and Rapid Response.

Stewards routinely walk and monitor the Breakneck Hill Conservation Land and use Stewardship meetings to discuss their observations and respond appropriately. For example, the Stewards detected spotted knapweed, an invasive associated with agricultural use, and treated it early. They continue to monitor for it. Earlier portions of this plan include assessing the rocky outcrops, which would be part of the early detection. Furthermore, the Stewards are aware of a Tree of Heaven near the trail edge at the western side of the North Pasture. This invasive tree is outside the areas managed by the Stewards, but they will monitor for its spread on the property.

Mowing Strategically.

The mowing schedule for the property serves multiple aims. Among them are encouraging grasses in B, C, and D, creating habitat, and reducing invasive plants, particularly bittersweet and the smaller multiflora roses that can be managed by mowing.

Treating Invasive Plants.

Following the best management practices as determined by licensed professional herbicide applicators, spot treatments aimed at specific invasives can be effective in controlling their spread. The Stewards are mindful that the visiting public as well as community gardeners will want to know when and where herbicides will be applied and will use signs and trail closures as necessary to alert them. The Stewards are also aware of the impact that herbicides can have on pollinators and sensitive areas such as wetlands, vernal pools, and community gardens and will consult the expertise of licensed professionals to use this management tactic sparingly, appropriately, and effectively.

Restore the Area Upland to the Replicated Wetlands.

This area of the property (behind Harding Botanicals) was previously established through an Eagle Scout project and features an educational sign. Intended in part to create a viewing area, that view has been obscured by overgrowth. It merits attention to reduce invasives and restore the viewing area, which also contributes to the property's recreation value.

**Potential
Eagle Scout
Project**

Identify Funding.

Southborough resides in the SuAsCo Watershed. The Stewardship Committee recently joined the SuAsCo CISMA, which is a partnership of organizations that intend to manage invasive species common to this area. Being a member provides access not only to grants the Stewards may not otherwise be aware of, but also to resources and information about best practices.

The Stewards recommend that the Southborough Conservation Commission also become members of SuAsCo CISMA.

Stewardship routinely seeks out sources of funding, including Community Preservation Act and others.

Conservation Mission Goal: Assessing the North & South Pastures

The North and South Pastures are a new concern for the Stewardship Committee and as such we are taking a reserved approach to their maintenance, which unfolds in two phases. Our plan is to first have the wetlands located within the boundaries of the South Pastures designated. In the meantime, the Stewards will coordinate with former Cow Fund members to ensure the pastures are cleared of remaining posts so the mowing can be scheduled. Then, once cleared of remaining posts and the wetlands have been delineated, the Stewards can proceed to manage. Once these two items have been completed our plan is to wait and watch the area. We would like to get public input for any ideas for use in these pastures. Perhaps have grazing animals or an orchard of some kind.

Phase 1: Delineate the Wetlands Within the Pastures.

Having a wetlands scientist officially designate the boundaries of the wetlands within these pastures will inform subsequent decisions regarding conservation and passive recreation in these pastures.

Phase 1: Mow.

The mowing schedule for the property includes an annual mow of these pastures, where possible given the wetlands, the remaining trees, rocky outcrops, and multiflora roses.

Phase 1: Control Invasive Plants.

These pastures have extensive multiflora roses, many too large to be controlled through mowing without large equipment. Also, the northeast corner of the North pasture has a large autumn olive tree and small saplings that should be removed. Furthermore, the cows successfully kept the bittersweet off the orchard trees, but it may re-emerge as a threat to those trees. The Stewards consult with experts concerning the best practices for mowing, spot treatments, and other approaches to address the invasives in these pastures.

Phase 2: Manage the Pastures.

Until recently these pastures were grazed. The Stewards will monitor the property, explore conservation and recreation options, and manage appropriately.

Phase 2: Prepare Options and Invite Community Input.

The Stewards will use their meetings to explore feasible options for the pastures, which could include restoring the orchards, having grazing animals there, and additional trails, among others. They will also plan another forum, later in the year, to reach out to the public engage them on the challenges and options these pastures present.

Passive Recreation Mission Goal: Maintaining Trails

Breakneck Hill Conservation Land features at least 3 miles of trails maintained by volunteers. Most of the trails are mowed grass. In addition, two trails loop through the forest and one forest trail leads to Kidder Lane parking. During growing season, the mowing interval is between 1 and 4 weeks.

Mowing Trails.

Two Stewards currently mow the trails on a volunteer basis, with no cost to the town. Their mowing provides regular opportunities to monitor the conditions throughout the conservation land.

Address Trail Erosion and Footbridges as Needed.

From time to time, the trails and footbridges need more attention than mowing. This can include minor adjustments in trail location (larger trail changes require a Stewardship vote) and applying natural fertilizers to promote plant growth and ward off erosion. Also, the footbridges may need to be stabilized from time to time. The Stewards will monitor for these issues, discuss them at their meetings, and address them as needed.

Post Signs for Trail Closures, Rules.

The Stewards will post signs regarding the trails and applicable town rules. For example, signs will be used to

- Advise visitors to stay on the trails except when there is snow cover
- Alert visitors that certain trails will be closed from April through August to protect grassland birds
- Inform dog walkers that Southborough town laws require dogs to be under the control of their owners and subject to a fine when dog waste is not picked up.
- Alert visitors of any herbicide treatments or unusual management activities that may be underway on the property.

Signs will be located at the existing kiosk at the trailhead parking lot as well as, as needed, throughout the property, keeping in mind that it is Conservation Land and wanting to minimize signs in general.

Assess and Restore Access Trail from Woodland Road.

An overgrown access trail with a gate exists on Woodland Road near Route 9. This trail represents an opportunity for the Breakneck Hill trails to connect for a large loop to other trails in town, notably in the Town Forest. Stewards will assess this area, including determining its potential as an Eagle Scout project.

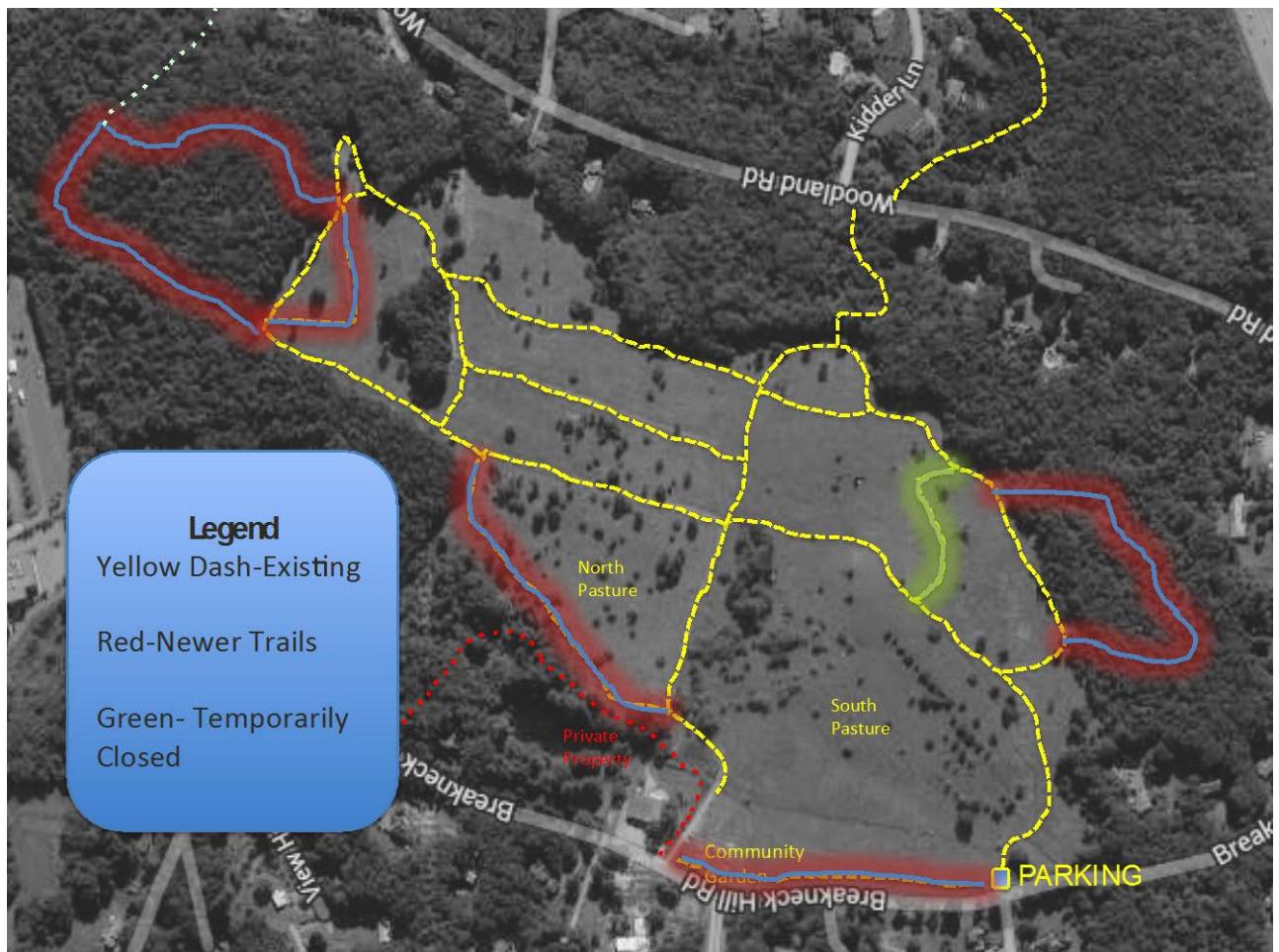
**Potential
Eagle Scout
Project**

Update the Trail Map and Consider Naming the Trails.

The current trail map is out of date and having a new one would be useful for the Stewardship Committee to share with other groups, such as the Recreation Department, Trails Committee, and Open Space, among others.

**Potential
Eagle Scout
Project**

Trail Map as of 2016



Passive Recreation Mission Goal: Provide Year-Round Parking

A gravel and dirt parking lot for the trails is provided at the main trailhead on Breakneck Hill road. Capacity for this lot is about 7 to 8 cars. More cars can fit on the grass here for special events.

Parking is also available just down the road at the Community Gardens.

Additional parking is available at a small, town-provided parking area on Kidder Road (3-4 cars, to the left as you enter Kidder road). The trail to Breakneck Hill Conservation land is directly across Woodland road. Street parking is available here as well. Town forest trails are also accessed at this location.

Seasonally Mowing the Lot Edges or Marking Them for Plows.

The parking lot at the trailhead is dirt and gravel surrounded by grass. Additional parking opportunities exist at Community Gardens. In summer, when the Community Gardens are underway, parking can be challenging. Mowing the grass by the trailhead lot helps. Likewise, placing simple reflective markers along the lot edges helps plows for maintaining winter access. The Stewards are dependent on the Department of Public Works for plowing and understand that roads will be the priority.

Monitor the Lot Condition.

The gravel helps visitors avoid the mud and wet patches. Over time, the gravel may need to be replenished. This could create an opportunity for an Eagle Scout project.

**Potential
Eagle Scout
Project**

Passive Recreation Mission Goal: Sponsor & Co-Sponsor Events

Over time, the Stewardship Committee worked successfully with Eagle Scouts, the Southborough Open Space Preservation Commission, Southborough Open Land Foundation, the Southborough Recreation Department, the Appalachian Mountain Club, and the Massachusetts Butterfly Club, among others. Co-sponsored events have included tracking walks, butterfly walks, and bird walks. Currently, the Stewards support and participate in the Bumblebee Survey. The Stewards are considering sponsoring and/or co-sponsoring additional events in the future. These might include, but are not limited to:

- **Earth Day Event.** This could feature trail hikes and clean up.
- **Snowshoeing.** With enough snow cover, the property presents great opportunities for snowshoeing.
- **Vernal Pool Family Event.** This could feature salamanders and education.

Passive Recreation Mission Goal: Community Gardens

Community Gardens provides Southborough residents with opportunities to grow their own vegetables and enjoy outdoor activities at the Breakneck Hill Conservation Land. Garden coordinators manage community garden, not Stewardship. The Community Garden recommends organic approaches to gardening. The Stewardship Committee defers to the garden coordinators and will collaborate with them as needed to manage the surrounding areas.

Ensure, through two-way communication, that the management plan for the property is compatible with Community Gardens.

Two Stewards are currently also community gardeners. They can serve as needed as liaisons to the Community Garden Coordinators.

Other Plans

The Stewards have agreed to other actions to contribute to positive experiences at the Breakneck Hill Conservation Land. These include:

Updating and Posting the Rules.

Posting the rules at the kiosk and trailheads can promote a positive experience for all visitors. An example of such two such signs could be

Welcome!
Please abide the
Conservation Land Rules

Open Dawn Til Dusk

Stay on the Trails

No Alcohol
No Fires
No Horses
No Motorized Vehicles
Carry Out All Trash

Welcome
Dog Owners!
Per the Town of Southborough

**Dogs Must Be Under Control
At All Times**

and

**Owners Subject to Fines for
Not Picking Up Dog Waste**

Identifying Those Authorized to Work on the Property.

The Stewards are exploring nametags to identify Stewards when they are managing the property. This would invite visitors to engage them on the plans for the property or reassure them if they wondered whether someone was not authorized to be off-trail or involved in an activity.

Summary of Actions by Season

Winter	Spring	Summer	Fall
Tree Removal in B, C, & D	Close trails bisecting B, C, & D	Mow B, C, & D as soon after 8/1 as possible	Late season mow for other sections, leaving overwintering pollinator habitat
Potential event, such as snow shoeing or tracking	Mow and maintain trails	Mow and maintain trails	Mow and maintain trails
	Monitor for invasive plants*	Monitor for invasive plants*	Monitor for invasive plants*
	Potential event, such as education at a vernal pool, earth day, bird walk, bumblebee survey	Potential event, such as butterfly walk	
	Bumblebee survey work from late spring to early fall		
	Wetland delineation can happen in these seasons as long as there is no snow cover		
<p><i>*The Stewards will address any invasive hotspots according to experts with the most cost-effective means feasible and following the best management practices per licensed herbicide applicators and other experts.</i></p>			

Challenges

The Stewards face multiple challenges in accomplishing their dual mission of conservation and passive recreation.

Challenge: Limited Funding

Given this challenge, the Stewards research funding opportunities through grants.

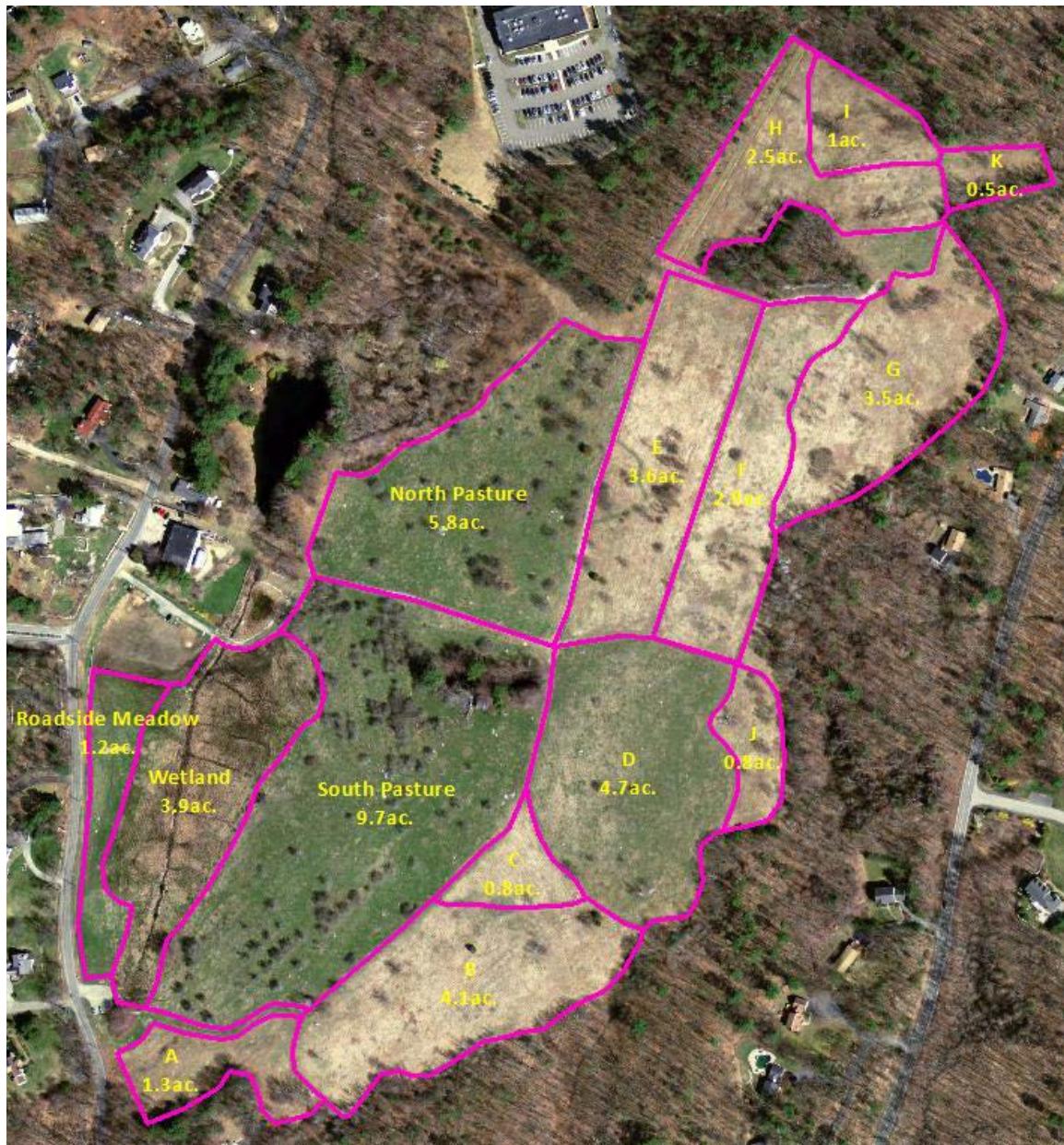
Challenge: Identifying Volunteers

The plan includes opportunities for volunteers to become engaged in property. For example, the Stewards welcome volunteers to help monitor the property for invasives; to plant, weed, and water the native pollinator garden; and, to dethatch the grasslands, among others.

Challenge: Respecting and Balancing All Aspects of the Mission.

Some aspects of conservation and passive recreation are incompatible. For example, managing invasive plants can sometimes mean introducing chemicals that can be dangerous to pollinators. Also, trail use can undermine opportunities for grassland birds. The Stewards strive to balance the multiple uses to advance both parts of the mission in how the property is managed.

Appendix A: Map of Breakneck Hill Conservation Land with Estimated Acreage



Notes:

Map and estimates from Mass Audubon. Wetlands are estimated only and as of the Massachusetts Audubon work in 2015.

Appendix B: Recommendations from Mass Audubon for Sections B, C, and D, September 2015

Mow the meadows soon after August 1st to encourage grasses over wildflowers

Remove the clippings at least every other year to reduce thatch

Remove as many trees as possible, ideally all of the trees in these sections. Also remove woody debris from the grasslands so mowing equipment is not restricted

Monitor rock outcrops for persistence of invasives and control as appropriate.

Appendix C: Highlights of Completed Action Items Calendar Year 2016

Activity	Mission	Notes	Cost
Mowing Fields B, C, & D as soon after 8/1 as possible	Conservation	Hired Twin Pines, posting signs in advance of mowing 11/29/16; Mowing completed December 2016	\$4,200 (Actual)
Annual mowing remaining fields, leaving some areas unmowed for habitat	Conservation	Hired Twin Pines, posting signs in advance of mowing 11/29/16; field F left unmowed; Mowing completed December 2016	
Post & Close trails bisecting B, C, & D between 4/1 & 8/1	Conservation		None
Monitor & Address invasives	Conservation	Applied and rec'd grant for \$5,000 for environmental assessment and public outreach for North and South Pastures FY 17	
Manage & Install Bird Boxes	Conservation	Rec'd kestrel box from State ornithologist 8/16, expecting to be installed by an Eagle scout or other in 2017	Donated
Develop the interpretive trail	Conservation	Added plants and mulch to pollinator gardens in 2016 Registered the garden for the Million Pollinator Garden challenge	CPC Est. \$6,000 +Pro bono labor NA
Support the bumblebee survey	Conservation Recreation	Ongoing since 2015	NA
Explore installing bee nest sites	Conservation	Ongoing with an Eagle scout as of fall 2016	Volunteer
Delineate wetlands	Conservation	Completed Summer 2016	ConCom paid
Inventory resident birds	Conservation	Ongoing via Things with Wings blog and other	NA

Activity	Mission	Notes	Cost
Identify funding sources	Conservation Recreation	Joined SuAsCo CISMA summer 2016; CISMA grant fall 2016 \$2,250; CPA Admin grant fall 2016 \$5,000 ; Beneficiary of Community Fund Grant Fall 2016 via Trail Committee and Rec Department	NA
Maintain Trails	Recreation	Trails mowed regularly, monitored for erosion, seeded/adjusted as needed; After an 8/2016 microburst, the Town forest had many downed trees needing attention; addressed via Community Fund grant and trails committee; Downed tree near trail head cleared and mulched, Twin Pines; DPW adds budget allowance to address future storm damage to trails, Fall 2016 per Doreen Ferguson	Volunteer Funded via the Grant Community Fund and Trails Committee \$800 (Actual)
Sponsor & Co-sponsor events	Recreation	2016: Participated in Bumblebee event at the library (5/10), the pollinator event at the library, and the environmental forum at the library (9/28)	NA
Community gardens	Recreation	2016 was a successful growing year with 50+ garden plots	NA
Update & Post signs	Recreation	As needed	Donated