

LAND MANAGEMENT PLAN FOR

**Cow Common
Conservation Area**

IN

WAYLAND, MASSACHUSETTS



Amber Carr
Mass Audubon Ecological Extension Service
June 2018

Table of Contents

Introduction 1

Land Management Plan 1

 Site Goals and Challenges: 1

Property Description 1

 Site Setting and Context 1

 Ecological Features 4

 Topography 4

 Soils 5

 Natural Communities 7

 Wildlife 7

 Permitted Uses 8

 Safety Concerns 8

 Threats and Opportunities 8

Management Recommendations 9

 Description of Past Management Action 9

 Recommendations for Future Activity 11

 Invasive Plant Remediation 11

 Wildlife Enhancement 13

 Passive Recreation 19

 Schedule of Maintenance Activity 23

 Yearly ongoing Activities 23

 Short term Projects 23

 Long Term Projects 24

 Priority and Cost Estimates for Recommended Projects 26

Appendix A 27

Mass Audubon protects 36,500 acres of land throughout Massachusetts, saving birds and other wildlife, and making nature accessible to all. As Massachusetts’ largest nature conservation nonprofit, we welcome more than a half million visitors a year to our wildlife sanctuaries and 20 nature centers. From inspiring hilltop views to breathtaking coastal landscapes, serene woods, and working farms, we believe in protecting our state’s natural treasures for wildlife and for all people—a vision shared in 1896 by our founders, two extraordinary Boston women. Today, Mass Audubon is a nationally recognized environmental education leader, offering thousands of camp, school, and adult programs that get over 225,000 kids and adults outdoors every year. With more than 125,000 members and supporters, we advocate on Beacon Hill and beyond, and conduct conservation research to preserve the natural heritage of our beautiful state for today’s and future generations. We welcome you to explore a nearby sanctuary, find inspiration, and get involved. Learn how at massaudubon.org. Mass Audubon’s Ecological Extension Service (EES) assists cities and towns, land trusts, state and federal agencies, and other conservation partners with natural resource inventories, habitat restoration and management planning, and conservation planning. Through EES we can share the experience we have gained in managing our own network of wildlife sanctuaries across the commonwealth. For more information on EES, contact 781-259-2198 or acarr@massaudubon.org.

Introduction

Cow Common is a 72 acre property consisting of eight smaller parcels. The conservation area is bordered by Route 27 to the East, Great Meadows National Wildlife Refuge along the Sudbury River to the West and North, and a development complex to the South. The main management goals of this property are to provide nesting and foraging habitat to grassland birds, reduce invasive plant species, maintain and enhance the trail system, maintain management of the community garden area, and enhance habitat for pollinators.

Land Management Plan

Site Goals and Challenges:

Goals for the site are to:

- enhance public access by improving parking and signage at the site
- enhance public enjoyment of the site by extending the trail to a wetland observation platform
- enhance grassland fields to enhance habitat for grassland birds
- enhance pollinator habitat

Challenges include

- wetlands which will necessitate use of boardwalks for some trail sections
- maintaining mowing to minimize impacts on grassland birds
- enforcing leash regulations for dog walkers

Recommendations for addressing these goals and challenges are detailed below.

Property Description

Site Setting and Context

Cow Common Conservation Area is located in a semi-rural area of Wayland surrounded by conservation land, individual homes and a condominium and shopping complex. Great Meadows National Wildlife Refuge borders Cow Common Conservation Area along a little less than half of its boundary. (Figures 1 and 2). Early successional species dominate the field edges including white pine, grey birch, silky dogwood and speckled alder which slowly transition into Red Maple Swamp forests. Dominant invasive species found throughout the field edges and forest understories are multiflora rose and glossy and common buckthorn. The 2.2 miles of trails allow access to both field and forest habitats as well as the Wayland Community Gardens within the property. Access into the property includes two entrances off of Route 27 and local trail entrances from the development to the South as well as to the Bay Circuit Trail that runs on the Western edge following the Sudbury River. The eight parcels together comprise

over 72 acres of contiguous conservation land minutes away from the center of town and is highly valuable for the recreational opportunities it provides to the surrounding community. Any development for recreational opportunities should be balanced with preserving the diversity of habitats favored by ground nesting and migratory bird species. Examples include creating a new trail that allows views into a southern wetland area, removing a border of trees to connect the two main fields to increase available nesting habitat to grassland bird species, maintaining mowed trails that hug the forest edge to minimize disturbance to grassland bird nesting habitat, as well as smart meadow management including late season mowing and leash law enforcement for dog walkers.

Figure 1: *Locus Map Cow Common Conservation Area*

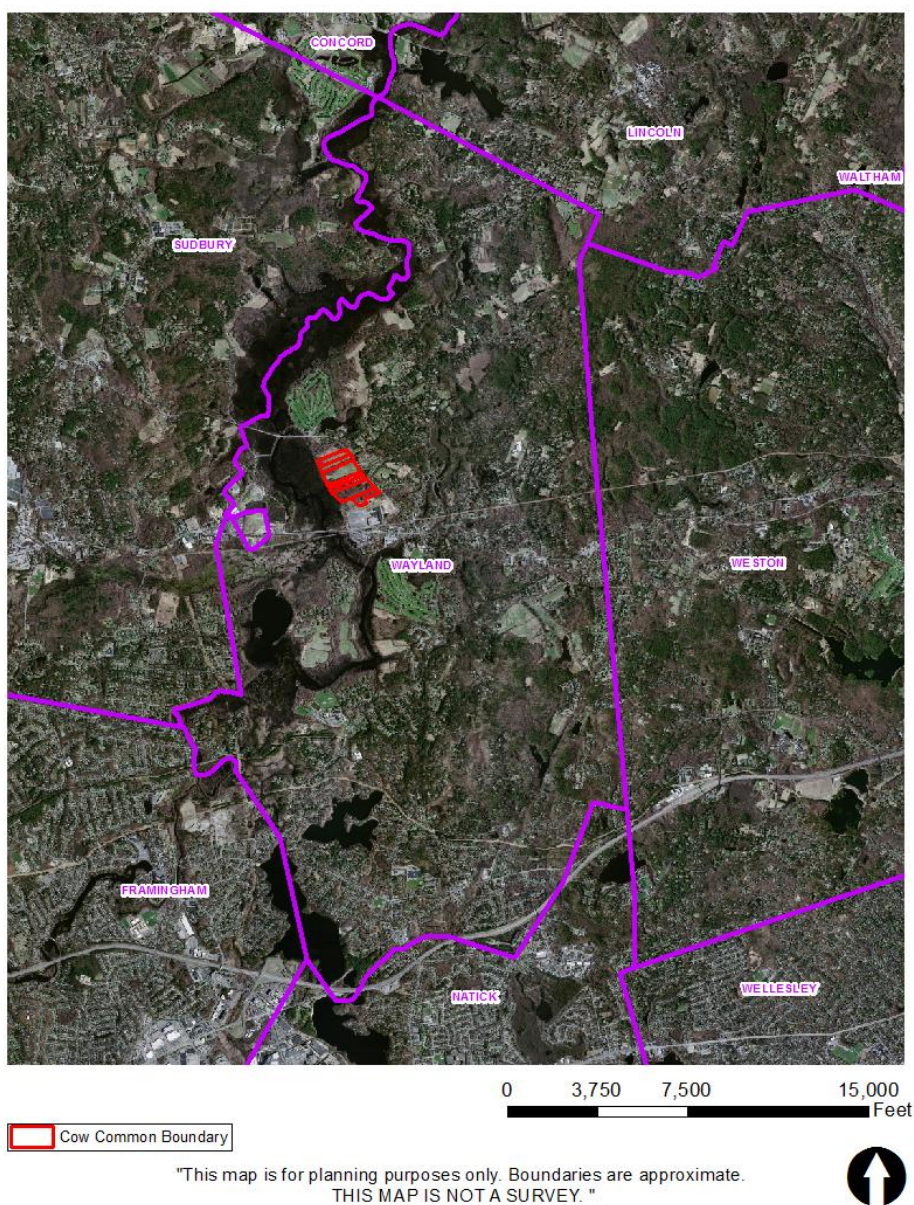
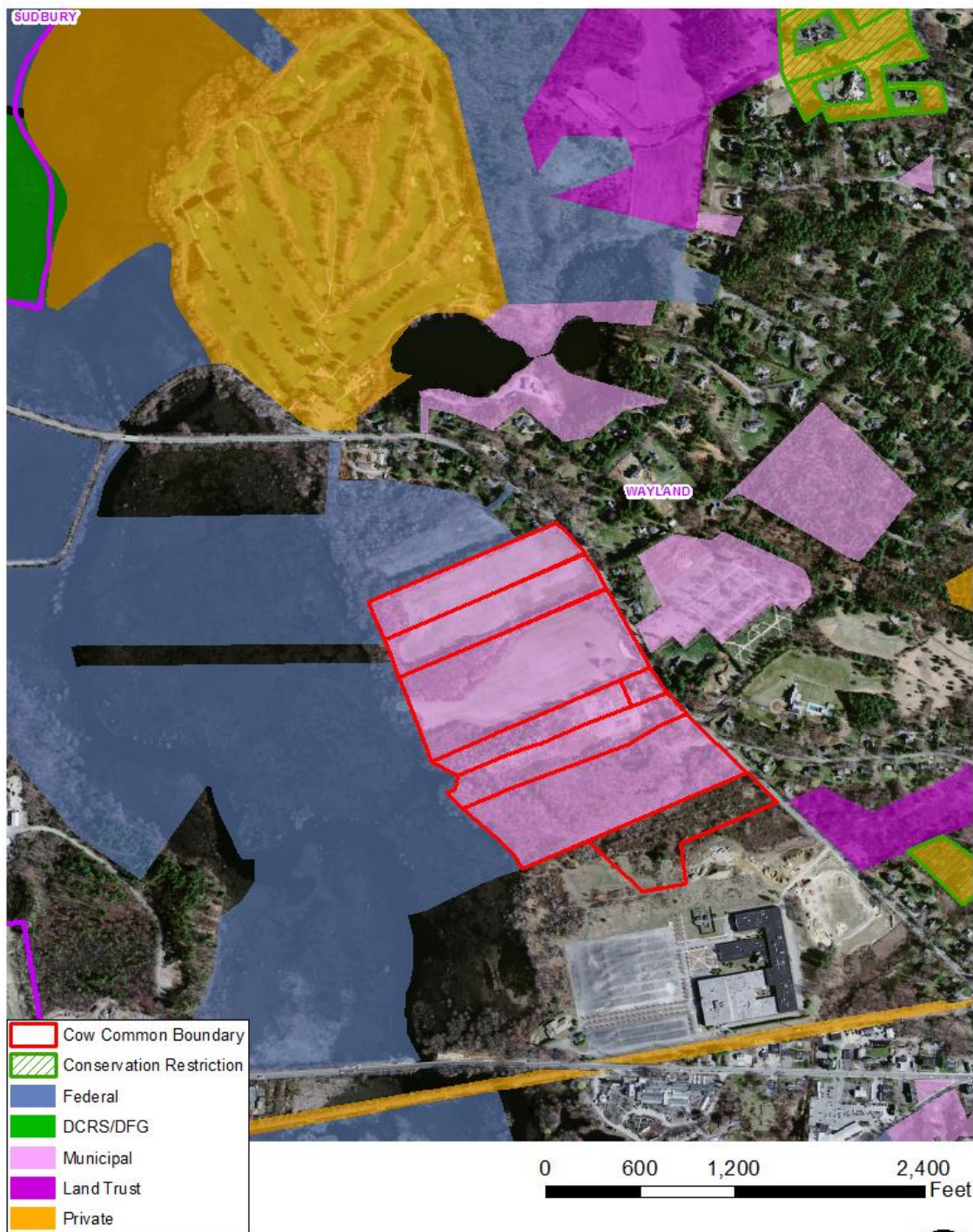


Figure 2: Open Space Map



"This map is for planning purposes only. Boundaries are approximate.
THIS MAP IS NOT A SURVEY."

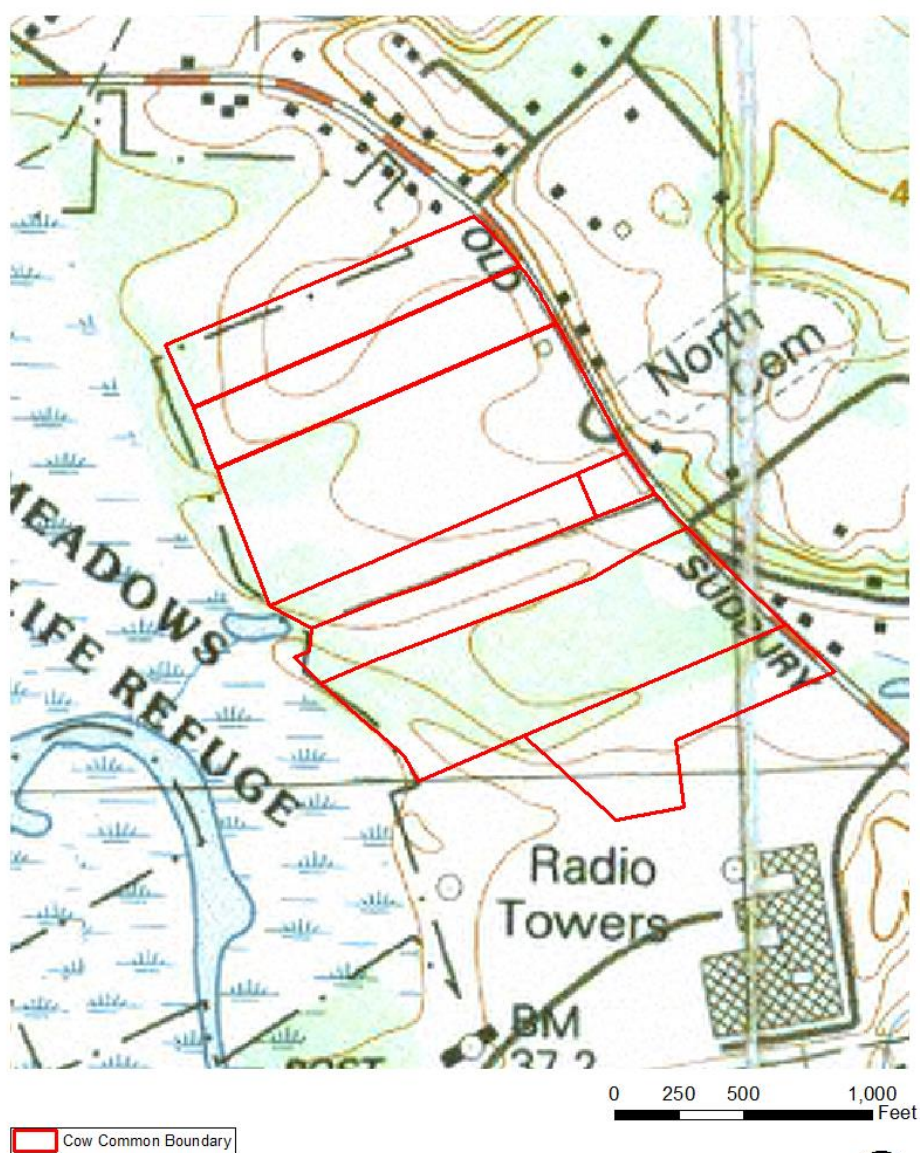


Ecological Features

Topography

As seen in Figure 3, the Cow Common parcels have a gentle slope running from Route 27 (Old Sudbury Road) towards Great Meadows National Wildlife Refuge into the Sudbury River. The Western boundary follows the edge of the wetland that buffers the River. There are no steep slopes on the property, making it suitable for trails around the field edges and through the wooded parcels. Water drains from the East of the property and flows West towards Great Meadows National Wildlife Refuge where it eventually drains into the Sudbury River.

Figure 3: Topo Map



"This map is for planning purposes only. Boundaries are approximate.
THIS MAP IS NOT A SURVEY."

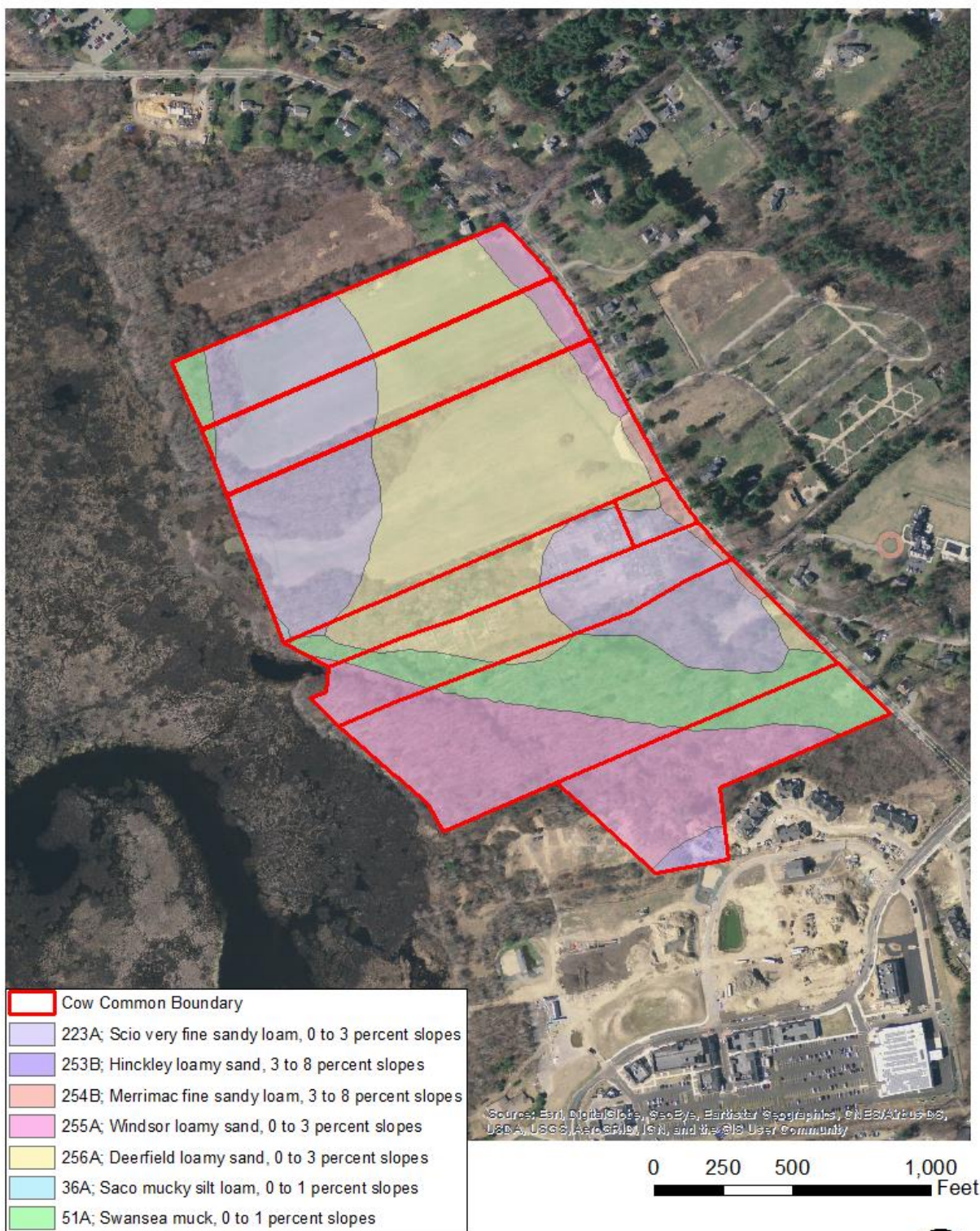


Soils

Soil texture is classified by the relative composition of clay, silt and sand particles. Sandy soils tend to be well-drained and nutrient poor. Silt laden soils are described as “dusty” and commonly found in floodplains. Clay soils are typically poorly-drained and are often heavy, dense and sticky, conditions which limit root growth in some plants. Ideal agricultural soil, a “loam”, is a combination of sand, silt and clay with moderate drainage and nutrient availability, and density conducive to root growth and microbial community colonization. Loamy soils can retain moisture but drain moderately well so the soils do not remain saturated for longer periods of time.

Soils on the eight Cow Common parcels include both poorly drained mucks, rich in organic material from decaying wetland plants, and rapidly drained sandy loams (Figure 4). Neither type is highly suitable for agriculture other than hay due to the water retention properties within the soil. Swansea muck is found in the upper Western corner bordering wetland as well as a large swath that runs through the southern parcels. These areas are predominately Red Maple Swamp. Deerfield Loamy Sand is predominately found in the grasslands and typically is not suitable for agriculture. Because the soil does not retain moisture, production is limited to crops such as sweet corn or hay. Both the conservation area and the community gardens parking locations are located within this soil type. Hinkley Loamy Sand is the main transition soil from the wetter areas to the open grasslands. These areas are well drained and are typically good for homesite construction but also have some agricultural potential. The Community Gardens are located within this soil type and therefore will require regular irrigation, fertilizer, and incorporation of plant material into the plow layer to maintain soil health and productivity.

Figure 4: Soil Map



"This map is for planning purposes only. Boundaries are approximate.
THIS MAP IS NOT A SURVEY."



Natural Communities

Natural communities are divisions in plant communities based on conditions determined by the landscape as a whole. Soil composition, slope, aspect, elevation and land use history are all factors that determine the distribution of natural communities on a site.

Cow Common Conservation Area is comprised of open fields, mixed woodlands, and wetlands. The open fields are dominated by Timothy, bedstraw, plaitain, clover, dandelion, and common vetch. In the center of the field near the parking area there are several trees and shrubs that should be removed to increase grassland bird nesting habitat (Figure 5). The mixed woodlands are dominated by Red Maple interspersed with Grey Birch, White Oak, and White Pine. Glossy buckthorn, Common Buckthorn, and Muliflora Rose dominate the understory of the forested areas as well as along the field edges along with Black Cherry, Silky Dogwood, and Speckled Alder. Wetlands range from open cattail marsh on the Southern portion of the Conservation Area to Red Maple Swamps in the forested areas.

Figure 5: *Cluster of trees and shrubs inside of field near main parking area*



Wildlife

The Cow Common Conservation Area includes Priority Habitat for Rare Species and Estimated Habitat for Rare Wildlife as defined by the 13th edition of the Massachusetts Natural Heritage Atlas on its Western edge abutting the Great Meadows National Wildlife Refuge. There are two potential vernal pools located on the Southern portion of the property within the newly axquired parcel 23_052A. The entire conservation area is designated as part of Massachusetts Noteworthy Scenic Landscapes.

Bronze Copper Butterflies, which are rare to the state, can be found around the Community Garden area. Woodcock are usually seen and heard around the apiary meadow in the fall and approximately ten pairs of Bobolinks have been seen in the grassland fields. It also still provides habitat for generalist species. Common habitat generalist mammals that are likely to occur within the Cow Common Conservation area include: Virginia opossum, Eastern Gray Squirrel, Red Squirrel, Eastern chipmunk, Meadow vole, White-footed deer mouse, Eastern cottontail, Coyote, Red fox, Long-tailed weasel, Striped skunk, and White-tailed deer. Migratory bird species use a mix of forest, edge, and field habitats that are available within the eight parcel boundaries and surrounding habitats of the Cow Common Conservation Area.

Permitted Uses

The parcel is open for the public to enjoy multiple passive use opportunities including walking, hiking, Nordic skiing, snowshoeing, gardening, and wildlife watching. According to the town website, on leash dog walking is also permitted with the following restrictions:

- All dogs must be leashed in parking lots and conservation areas;
- For the safety of nesting birds, all dogs must be leashed on prime grassland birding sites (Heard Farm and Cow Common) from May 1-July 15 or until the fields are mowed;
- All dogs must be leashed or under voice control at all times;
- Visitors are allowed up to 3 dogs per person, but only 2 may be off leash at one time;
- Please keep your dogs on the trails for the safety of the area's wildlife and field nesting sites;
- Please bring plastic bags to pick up and properly dispose of all dog waste;
- Please leash your dogs when encountering other dogs or people, especially children;

Safety Concerns

There are few concerns about public safety relating to the condition of the property. The open fields could host stinging insects and ticks. Poison ivy was readily observed both in the forest understory and along the wetland edge. Given the trails are along the field edges and within the forest, special efforts should be made after high wind events to survey the trails for fallen trees and hanging branches overhead and remove any hazards identified.

Threats and Opportunities

Invasive species pose one of the main threats to ecological integrity of the the Cow Common Conservation Area. Glossy buckthorn, common buckthorn, oriental bittersweet, bush honeysuckle, and multiflora rose edge the forest and grassland interface. Glossy buckthorn is the main invasive growing in the forest understory and a small infestation of phragmites is located near the compost pile within the Community Gardens.

Currently it is estimated that ten Bobolink pairs utilize the grasslands for nesting habitat. Restricting harvests of hay from mid May to mid August would allow Bobolinks to nest successfully and possibly raise multiple broods. Of the 22 acres of hayed fields only about 2.6 is suitable for grassland bird nesting

habitat. If 2 acres of trees which separate the fields were removed the available nesting habitat for grassland birds would increase to 5.8 acres.

There are currently two sections of the fields that are too narrow to provide much habitat for birds and are not utilized as part of the trail system by the public. These sections along the Western boundary should be restored to shrubland.

If the town turned approximately 1 acre of open areas around the community garden and the apiary into pollinator habitat, mowing these areas later in the year around mid October would be appropriate. When mowing in these areas, 6 inches of height should be left to benefit insect larvae.

Currently the Cow Common Conservation Area does not have a trail that extends into the Southern most parcel. The existing trail system could be extended to include an observation platform overlooking the cattail marsh. This would consist of about 500 feet of new trail, the majority of which would be boardwalk. This would increase the trails to 2.3 miles within the Conservation Area.

The parking lot is currently filled with pot holes and does not have an entrance sign. Resurfacing the parking area as well as installing a double sided entrance sign that is perpendicular to the road will enhance the entrance area to the conservation area for the public.

Management Recommendations

Description of Past Management Action

The current management actions are limited to haying the fields, maintaining the trails, and some invasive plant management (see Figure 6).

- Hay is usually harvested for the fields in late July. The harvested hay is currently used mostly for bedding and old rolled hay bales are still left from previous years along the field edges.
- Trails are currently mowed every two weeks around the edges of the field and are 6-10 feet in width
- Invasive plants are being treated manually by cutting, mowing, or removing shrubs including root systems. In areas where these efforts have been focused there seems to be impact, but the impact is small for the amount of effort required.

Figure 6: Current conditions at Cow Common Conservation Area



"This map is for planning purposes only. Boundaries are approximate.
THIS MAP IS NOT A SURVEY."

Recommendations for Future Activity

We recommend three management actions to control invasive plant species to enhance the habitat quality of the Cow Common Conservation Area, four management actions to enhance wildlife habitat within the conservation area, and five management actions to enhance the experience of passive recreation.

Invasive plant management recommendations:

- Obtain an herbicide applicators license by staff
- Treat phrag near compost site at Community Gardens
- Strategically treat invasives within the property:
 - Treat invasives around the community garden
 - Treat invasives from the trail system heading west towards the river
 - Treat invasives along the edges of the fields
 - Treat invasives within the forested areas of the property working from the trail system towards the interior of the property

Wildlife enhancement management recommendations:

- Restore two mowed areas on the western boundary to shrubland
- Create an acre of pollinator habitat near the Community Garden and apiary meadow
- Remove two acres of trees to increase grassland bird nesting habitat within the conservation area
- Mow grasslands before mid May and/or after August 15th. Pollinator meadows should be mowed in October

Passive recreation management recommendations:

- Mow trails on perimeter of fields 4-6ft in width
- Walk trails after storm events to clear tree hazards and make repairs to boardwalks
- Construct 500 ft new trail and observation platform that extends to the cattail marsh on the southern side of the property
- Resurface parking area to smooth pot holes
- Install two sided entrance sign along route 27 to clearly advertise the entrance to the conservation area

Invasive Plant Remediation

- Treat phrag near compost site at Community Gardens
- Obtain an herbicide applicators license by staff
- Strategically treat invasives within the property:
 - Treat invasives around the community garden
 - Treat invasives from the trail system heading west towards the river

- Treat invasives along the edges of the fields
- Treat invasives within the forested areas of the property working from the trail system towards the interior of the property

The largest threat to the ecological integrity and economic value of the Cow Common Conservation Area is the presence of invasive plant species. Manual or mechanical treatment is effective management for the open areas of grassland and community garden areas. For dense infestation, wet areas, or particularly hard to treat species using herbicide is recommended. Dense infestations should be sprayed with backpack sprayers. Cut and paint herbicide application techniques should be used in wet areas, near the river, and in areas where erosion is a concern. An outside contractor with a license can be hired but to cut down on costs it is recommended for town staff to obtain and use the license.

There is currently a small infestation of phragmites near the compost at the Community Garden (Figure 7). Control of Phragmites is difficult. Repeated cutting can slow its growth and possibly hinder its spread, but will not eliminate it altogether. The best method to eliminate Phragmites is the foliar application of a systemic herbicide when the plants are actively growing. Manual or mechanical cutting or pulling has been used successfully to control Phragmites. Treatments usually need to be repeated annually. The best time to cut Phragmites is at the end of July. Cutting at other times may increase stand density. Phragmites stems should be cut below the lowest leaf, leaving a 6" or shorter stump. Hand-pulling is an effective technique for controlling Phragmites in small areas with sandy soils.

See Appendix A for more information for treatment of various species.

Figure 7: *Phragmites* patch near compost at the Community Gardens circled in red



Wildlife Enhancement

- Restore two mowed areas on the western boundary to shrubland
- Create an acre of pollinator habitat near the Community Garden and apiary meadow
- Remove two acres of trees to increase grassland bird nesting habitat within the conservation

Fields at Cow Common Conservation Area are currently mowed to allow Bobolinks to successfully nest on site. However, there are several actions that can continue to enhance quality of wildlife habitat. The Town currently has an agreement with a farmer to mow the fields annually for hay in mid- July which is predominately used for bedding (see Figure 8). Sometimes, baled hay is left onsite instead of removed which impacts growth of underlying vegetation. Currently there are approximately 50 bales of hay left in the fields from previous years. These should be removed each season (see Figures 9 and 10). Since the site is over 10 acres in size it is suitable nesting habitat for Bobolinks, a grassland bird which nests in

Massachusetts. Existing arrangements can be modified to minimize the impact on these birds (see Figure 11), increase pair numbers and possibly increase productivity.

There are currently two mowed areas that are not providing grassland bird habitat nor are they being utilized as part of the trail system through passive recreation. These areas are labeled “Restore Shrubland” in Figure 19. These areas should be restored into shrubland to provide foraging areas for insects and various bird species. These areas should be allowed to undergo natural succession with care to actively manage any invasive species that try to establish. If the areas are mostly being inundated with invasive species active restoration efforts can be used including planting native berry producing shrubs.

Open meadow habitats can range from grass-dominated, frequently mown hayfields to infrequently mown, wildflower-dominated meadows. Each type provides habitat for a different suite of species based on plant composition, meadow size, moisture and other factors. This open habitat type has become less common in Massachusetts as agricultural land has grown into forest or been developed for housing or commercial use. As a result, remaining meadows are valuable habitat for a range of plants and animals that are also becoming less common. Several rare birds make use of grassland for nesting, however they prefer very large fields, generally 50 acres or larger with the most uncommon grassland birds found only in sites over 100 acres. Meadows as small as 10 acres will host breeding bobolinks and should be managed for bird habitat. While smaller meadows provide supplemental habitat for birds, they will generally be managed for plant and invertebrate habitat, and cultural and aesthetic values.

Challenges to meadow management include succession, encroachment, impacts to wildlife, and invasive species. In the absence of some form of disturbance, most New England meadows will naturally transition to an ‘old field’, a young forest, and eventually a mature forest. This process is termed *succession*. *Encroachment* is a more insidious form of succession where even well-tended fields slowly shrink as shrubby vegetation on the field edge grows further into the meadow year by year.

All fields need to be *disturbed* on a regular basis to avoid succession and encroachment, most often by mowing. The ultimate tension in grassland management is that disturbance is required to maintain the habitat, yet the disturbance may result in an impact to wildlife making use of the meadow. The goal of management is to plan the disturbance in a way that minimizes impacts to meadow-dependent species.

Mowing variables include timing, frequency, type of equipment, blade height, and fate of the mown material.

- Timing and Frequency – A field that is mown earlier in the season and more frequently in a season will tend to be dominated by grasses. A field mown once per year and later in the fall will tend to have a higher component of wildflowers. Mowing should be prohibited during bird nesting season, mid-May to mid-August. **Thus, any fields over 10 acres should be mown in mid August so that they remain grass-dominated. Fields smaller than 10 acres can be mown in September or October to provide nectaring plants for invertebrates.**
- Type of equipment – Fields can be mown with a rotary deck mower or a sickle bar mower. A sickle bar, or hay mower, is preferred for the larger fields to be managed as grasslands. A rotary mower tends to leave clumped material which can inhibit re-sprouting in the spring and smother insect larvae.
- Blade height – Any mowing should leave roughly 6 inches of standing material to provide habitat for invertebrate larvae.
- Treatment of mown material – Grassland nesting birds prefer a field with less thatch close to the ground. Larger fields managed as grassland habitat should be hayed, with material removed

after mowing. Smaller wildflower meadows managed for invertebrate habitat can be mown with clippings left in place.

Mowing should include removal of woody shrubs growing on the meadow edge to resist their natural expansion into the field. If necessary, a heavy mower should be used to clear back shrubs on field edges. Management should include removing shrubs and trees growing along stone walls that divide adjacent meadows to maximize the size of contiguous meadow. Single trees standing in a meadow can be maintained if they offer significant aesthetic appeal, but generally should be removed to maximize size of the field and to eliminate refugia for woody invasive species to become established.

Figure 8: *Current field conditions*



Figure 9: *Left over hay bales that should be removed annually*



Figure 10: *Left over hay bales that should be removed annually*



Figure 11: *Timetable for Best Management for Grassland Birds*

Mow Outside of Breeding Season

May						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July						
S	M	T	W	T	F	S
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

This is the most important management practice. In Massachusetts, the prime breeding season for grassland birds starts in mid-May and runs into early August. We recommend the following field management protocols:

Do not disturb fields between May 15 and August 15. Disturbance includes mowing, the use of any other mechanical equipment, and grazing. Leaving grasslands undisturbed until August 15 will ensure maximum survival of breeding birds and their young during the critical post-fledging period when young birds learn to forage and bulk up in preparation for migration. It will also ensure that the fields will accommodate adult and juvenile birds that are chased out of nearby fields by haying.

When possible, do not mow in the early spring. Mowing just prior to breeding season leaves very little cover in fields, making them much less attractive for nesting. If mowing is required to generate an early crop or to control woody vegetation or forbs, ensure that all operations are completed by May 15. Early season mowing should occur no more frequently than every other year.

If a field must be mowed during June or early July—and we strongly hope such will not be the case for lands held in the public trust by municipalities, land trusts, and conservation NGOs—intentionally make the site unsuitable for grassland-nesting birds by mowing every 2 or 3 weeks, beginning in late May and continuing through mid-July. Discouraging birds from nesting on such sites will prevent them from being lured into ecological traps; hopefully the frequent mowing will force them to relocate to other, more bird-friendly locations.

Many grassland bird species will nest in only large fields. Visual openness is an important aspect of how such birds assess habitat size. For example, Cow Common Conservation Area is comprised of 22 acres of grassland, however due to their shape it is estimated that birds are only perceiving 2.6 of those acres as grassland nesting habitat. If two acres of trees were removed that are currently dividing the North and South fields the nesting habitat would increase to 5.8 acres (see Figures 12 and 13). To maximize the attractiveness of fields to nesting birds, consider the following practices:

- Enlarge fields by reclaiming field edges. Mow encroaching woody growth during the offseason, taking care to control invasive species.
- Remove hedgerows and tree lines between fields to increase the functional size of available grassland habitat. For example, a line of trees running down the middle of 22-acre field effectively divides it into two. Removing that line of trees maximizes the value of the grassland.

Community members can be very opinionated about tree removal projects. It is recommended town staff post a management plan on their website, send out letters to abutters, hold staff walks of the

property to explain the purpose of the project and why trees are being removed, and post notices in the parking areas for surrounding conservation areas including the parking area at Cow Common.

Figure 12: *Current grassland bird nesting habitat from a birds- eye-view*



Figure 13: *Grassland bird nesting habitat from a birds-eye-view after proposed tree removal*



Passive Recreation

- Mow trails on perimeter of fields 4-6ft in width
- Walk trails after storm events to clear tree hazards and make repairs to boardwalks
- Construct 500 ft new trail and observation platform that extends to the cattail marsh on the southern side of the property
- Resurface parking area to smooth pot holes
- Install two sided entrance sign along Route 27 to clearly advertise the entrance to the conservation area

Mowing the perimeter of the fields to a width of 4-6 ft is desirable to create a continuous loop trail. Staying to the field edge will reduce impacts to sensitive areas such as wetlands as well as reduce the public's exposure to poison ivy. The trail should be mown every two weeks and woody vegetation should be clipped back annually. Trails are currently being mowed 6-10 ft wide. A decrease in the width of the trail will save time and other town staff resources. Trails should be walked regularly but particularly after large storm events to remove down trees, fix necessary repairs, or to identify areas where boardwalks are needed. Collaboration with Bay Circuit Trail is encouraged to jointly improve the trail system on the western boundary (see Figures 14-16).

Figure 14: *Downed tree after a recent storm along Bay Circuit Trail*



Figure 15: *Culvert in need of repair along Western boundary on Bay Circuit Trail. Located on trail between southern field and community gardens.*



Figure 16: *Area where boardwalk should be extended to minimize trail degradation*



The creation of a 500 ft boardwalk and observation platform is recommended to connect the existing trail system to the newly acquired parcel 23_052A. The new trail would lead to a wetland clearing where the observation platform would provide wildlife viewing opportunities into a cattail marsh.

Currently the surface of the parking area is filled with potholes and does not have a sign advertising the property. Adding gravel to resurface the entranceway and parking areas will smooth the entrance and exit into the conservation area. A double sided entrance sign can be installed perpendicular to the road to advertise the location of the property (see Figures 17 and 18).

Any programs or recreational opportunities open to the public will need to follow ADA regulations. Every recreational opportunity does not need to be ADA accessible. However, the town needs to provide people with disabilities equal opportunities to participate in programs and recreational opportunities in the town. This means, the town of Wayland should look at all of its trails and conservation areas and have an equal representation for the type of experience offered for that activity that is accessible to people of all abilities. Not every trail has to be accessible nor can or should be made accessible if it would fundamentally alter the experience of that activity. The Conservation Commission will need to communicate with the designated ADA Coordinator in Wayland (usually the Town Administrator or the Town Planner) for official guidance on providing equal opportunities to the public.

Figure 17: *Parking area should be resurfaced to remove potholes*



Figure 18: *An double sided entrance sign should be installed perpendicular to the road to advertise the property*



Schedule of Maintenance Activity

Yearly ongoing Activities

	Winter	Spring	Summer	Fall
	Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
Permitting for Planned Projects	x			
Monthly Property Visits	x	x	x	x
Annual Work Plan with Staff and Stewards		x		x
Safety Meeting with Staff, Stewards, Police and Fire Dept.		x		
Trail Walk/Clean Up (downed limbs, draining issues, signage needs)		x		
Repair Plow Damage		x		
Building Projects (kiosks, sign posts, etc.)		x		x
Invasive Plant Management			x	x
Mowing for Wild Flower Meadows				x
Mowing for Grassland Birds and Haying (After August 15 th)			x	
Boundary Walk (monitoring for encroachments, signage, etc)				x

Short term Projects

Invasive plant management recommendations:

- Obtain an herbicide applicators license by staff
- Treat phrag near compost site at Community Gardens

Wildlife enhancement management recommendations:

- Create an acre of pollinator habitat near the Community Garden and apiary meadow

Passive recreation management recommendations:

- Resurface parking area to smooth pot holes
- Install two sided entrance sign along Route 27 to clearly advertise the entrance to the conservation area

Long Term Projects

Invasive plant management recommendations:

- Maintain an herbicide applicators license by staff
- Strategically treat invasives within the property:
 - Treat invasives around the community garden
 - Treat invasives from the trail system heading west towards the river
 - Treat invasives along the edges of the fields
 - Treat invasives within the forested areas of the property working from the trail system towards the interior of the property

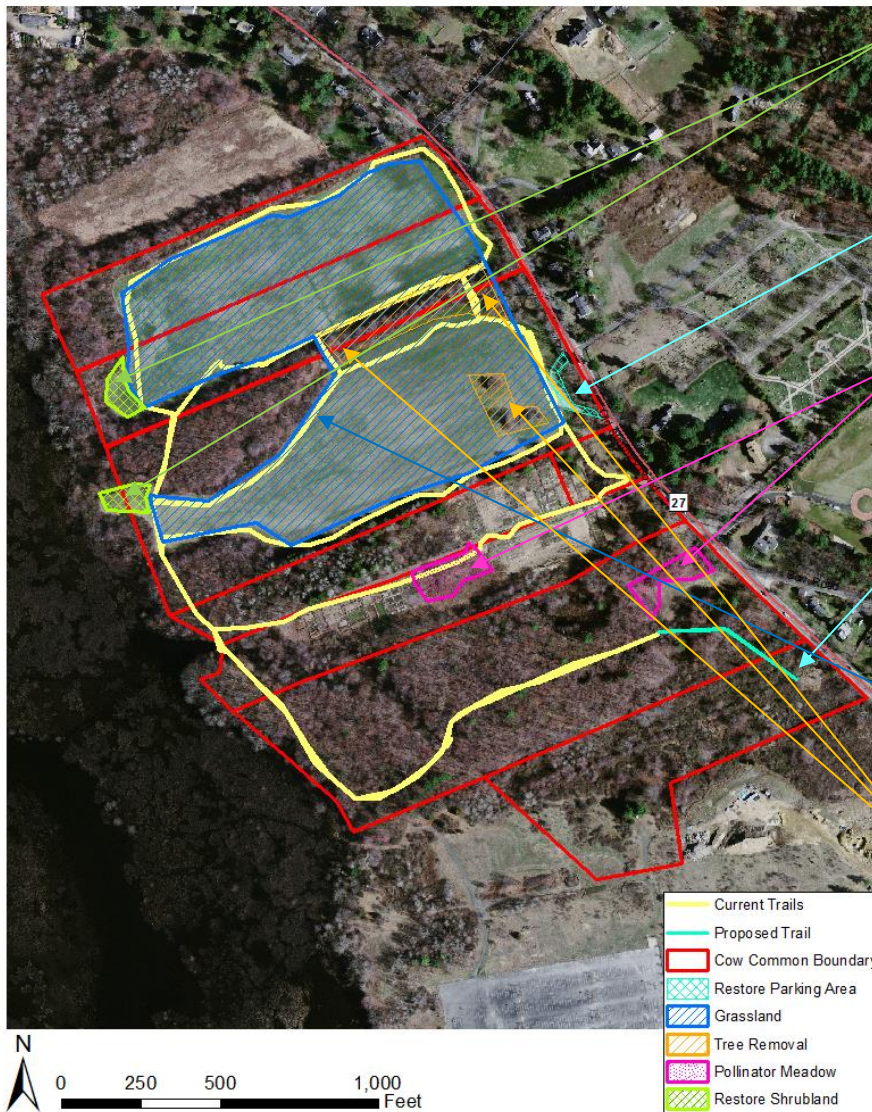
Wildlife enhancement management recommendations:

- Restore two mowed areas on the western boundary to shrubland
- Remove two acres of trees to increase grassland bird nesting habitat within the conservation area
- Mow grasslands after August 15th and pollinator meadows in October

Passive recreation management recommendations:

- Mow trails on perimeter of fields 4-6ft in width
- Walk trails after storm events to clear tree hazards and make repairs to boardwalks
- Construct 500 ft new trail and observation platform that extends to the cattail marsh on the southern side of the property

Figure 19: Cow Common Recreational Area *Design Plan*



Restore mowed sections of grassland into shrubland

Resurface parking area and add Entrance Sign along the road

Create an acre of pollinator habitat at the Community Garden and Apiary Meadow. Mow in October

Create new trail with observation platform overlooking wetland

Mow 4-6 ft wide trail around field edges

Remove 2 acres of trees to increase grassland bird nesting habitat. Mow grassland before mid May and/ or after August 15th

"This map is for planning purposes only. Boundaries are approximate. THIS MAP IS NOT A SURVEY."

□

Priority and Cost Estimates for Recommended Projects

Recommendation	Priority Level	Cost Estimate	Variables
Monitoring trails after storm events	High	\$0- \$5,000	Volunteers, staff, Bay Circuit Trail Partner, amount of repairs needed
Resurfacing of Parking Area	High	\$500-\$2,000	Resurfacing needed to be conducted
Control Phragmites	High	\$500- \$2,000 over three years	Staff or contractor
Haying of fields	High	\$0	Leased farmer
Mowing of trails and pollinator meadows	High	\$500- \$1000	Staff or contractor
Restore mowed field to shrubland	High	\$0- \$500	Staff, volunteers, contractor, amount of invasive species present and whether native plantings are needed
Obtain/ maintain herbicide applicators license	Medium	\$500- \$1,000	Availability of staff, how useful the license would be overall to the town
Control of field invasives	Medium	\$500-\$25k over five years	Volunteers, contractor, or staff and extent of follow up treatments needed
Control of forest invasives	Medium	\$500-\$25k over five years	Volunteers, contractor, or staff and extent of follow up treatments needed
Remove 2 acres of trees to connect grasslands	Medium	\$30,000-\$50,000	Contractor, equipment needed
Installation of entrance sign	Medium	\$1,000	staff and volunteers, costs of new sign materials
Creation of 1 acre of pollinator meadows	Low	\$500- \$2,000	Staff or contractor, cost of seed and method of application
Create 500ft of trail/ boardwalk and observation platform	Low	\$1k-\$30k	Volunteers, contractor, or staff, materials used

Appendix A

Several species of invasive plants are currently found within the Cow Common Conservation Area and we have described their management as it pertains to specific goals and objectives outlined in this plan. In general, we recommend that the stewards assess threats from invasive species during annual monitoring, and implement treatment according to specifications outlined by the town.

If herbicide is used, the exact concentration, chemical, and type of application should be decided by the applicator and approved by the town. The applicator should develop an Invasive Plant Management plan for the area and make recommendations to the town that are best suited for the site.

Glossy and Common Buckthorn

Manual, mechanical and chemical means are effective in controlling glossy buckthorn, and is most effectively controlled by recognizing its appearance early and removing isolated plants before they begin to produce seed. With large infestations, remove the largest seed-producing plants first. At this time no means of biological control is available for controlling glossy buckthorn. Hand pulling is effective in small infestations. Remove the entire root section or resprouting will occur. Weed wrenches can be very effective in uprooting buckthorn.

Chemical treatment is also an option. The type of herbicide determines the best time of year to apply based on how the chemicals disrupt the biological process of the plant. Triclopyr herbicides are much more effective early in the growing season. Glossy buckthorn retains its leaves late into the fall, so you can apply herbicide fairly late in the season. However, the application should not be too late or the leaves will no longer be photosynthetically active (or minimally so) and will easily fall from the twigs. During the growing season, cut the stems near ground level and apply a 20%-25% herbicide mixture to the stumps. Resprouts should be cut and treated again, or sprayed with a hand sprayer of 1.5%. Foliar applications over non-water sites can also be used. Foliar application of herbicides using a backpack sprayer is effective, but less selective.

Common Reed

Control with herbicides is effective for controlling areas with large, established, populations of Phragmites. Other options include mowing and prescribed burning. New stands of Phragmites commonly occur when new wetlands are created or the soil is disturbed. Minimizing land disturbances and water pollution helps deter this invasive species. Land management practices that guard against erosion, sedimentation, fluctuating water levels, and nutrient loading in wetlands are the best long-term solution.

Control of Phragmites is difficult. Repeated cutting can slow its growth and possibly hinder its spread, but will not eliminate it altogether. The best method to eliminate Phragmites is the foliar application of a systemic herbicide when the plants are actively growing. At this time no means of biological control is

available for treating Phragmites infestations. Manual or mechanical cutting or pulling has been used successfully to control Phragmites. Treatments usually need to be repeated annually. The best time to cut Phragmites is at the end of July. Cutting at other times may increase stand density. Phragmites stems should be cut below the lowest leaf, leaving a 6" or shorter stump. Hand-pulling is an effective technique for controlling Phragmites in small areas with sandy soils.

Repeated mowing is effective at slowing the spread of established stands but is unlikely to kill the plant. Excavation of sediments may also be effective, but root fragments left in the soil may lead to reestablishment. Prescribed burning after the plant has flowered, either alone or in combination with herbicide treatment, is also effective. Burning after herbicide treatment also reduces standing dead stem and litter biomass which may help to encourage germination of native plants in the following growing season. Do not burn plants in the spring or summer before flowering as this may stimulate growth. Chemical treatments are effective in controlling established populations. If a population can be controlled soon after it has established the chances of eliminating the infestation are much higher because the below-ground rhizome network will not be as extensive. Herbicides are best applied in late summer/early fall after the plant has flowered either as a cut stem treatment or as a foliar spray. Repeat treatments are required for several years to prevent any surviving rhizomes from resprouting.

Multiflora Rose

Mechanical and chemical methods are effective methods for managing multiflora rose but may need to be combined with chemical in large or persistent infestations. The most important steps to controlling multiflora rose are to destroy existing plants and begin a yearly program to control seedlings as they appear. Biological control is not yet available for management of multiflora rose. However, researchers are investigating several options, including a native viral pathogen (rose-rosette disease), which is spread by a tiny native mite, and a seed-infesting wasp, the European rose chalcid.

Manual and mechanical control consisting of frequent, repeated cutting or mowing three to six times per growing season for two to four years is effective in achieving high mortality of multiflora rose. In high quality natural communities, cut the individual plants to minimize habitat disturbance. Herbicides are successful in controlling multiflora rose but follow-up treatments are required because of the long-lived stores of seed in the soil. Apply systemic herbicides (such as glyphosate) late in the growing season to freshly cut stumps or to regrowth. In wetlands, where multiflora rose may occur, make sure to use a wetland-formulated concentrate. Use an active ingredient concentration of 25-35% when you apply herbicide to the cut stem. Plant growth regulators control the spread of multiflora rose by preventing fruit set.

Oriental Bittersweet

A combination of cutting followed by application of concentrated systemic herbicide to rooted, living cut surfaces is an effective approach for removing Oriental bittersweet. For large infestations spanning

extensive areas of ground, a foliar herbicide is recommended over manual or mechanical methods, which would create soil disturbance to minimize soil disturbance. Manual, mechanical and chemical control methods are effective in removing and killing Oriental bittersweet. A combination of methods often yields the best results and may reduce potential impacts to native plants, animals and people. The method selected depends on the extent and type of infestation, the amount of native vegetation on the site, and the time, labor and available resources. No biological controls are currently available for this plant.

Manual Control of small infestations can be achieved by hand-pulling but the entire plant should be removed including all the root portions. If fruits are present, collect, bag, and dispose of them in heavy garbage bags. Always wear gloves and long sleeves to protect your skin from poison ivy and barbed or spiny plants. Plants can also be controlled by cutting climbing vines near the ground at a comfortable height to kill upper portions and to relieve the tree canopy. Vines can be cut using pruning snips or a pruning saw for smaller stems, or a hand axe or chain saw for larger vines. Minimize the damage to the bark of the host tree. Rooted portions will remain alive and should be repeatedly cut to the ground or treated with herbicide. Cutting without herbicide treatment requires vigilance and repeated cutting because plants will resprout from the base. Begin treatment early in the growing season and repeat the treatment every two weeks until autumn

Systemic herbicides are absorbed into plant tissues and carried to the roots, killing the entire plant within about a week. This method is most effective if the stems are first cut and herbicide is applied immediately to the cut stem tissue.

Fall and winter applications will avoid or minimize impacts to native plants and animals. Repeated treatments will be required. Any herbicide applications should be carefully targeted to avoid damage to native, non-target species. If native grasses are intermingled with the bittersweet, triclopyr is better to use than glyphosate because it is selective for broad-leaved plants and will not harm grasses. Follow-up monitoring is required to ensure effective control.