

Dexter Drumlin Management Plan

2003



The Trustees of Reservations
572 Essex Street
Beverly, MA 01915-1530



Reservation	Dexter Drumlin	Completed by	Russ Hopping Tim Silva
Location	Lancaster	Date	3/18/03
Acreage	38	Area considered for management	38
Supporting reports and materials	2001 Breeding Bird Survey 1992 B&W ortho photo 1997 GIS Open Space Data Layer 2001 Critical Lands Ecological Assessment 2001 ACEC data 2001 MNHESP data 2001 BioMap data		

Acknowledgements The Trustees would like to thank Jean Lidstone and Roy Christoph of the Lancaster Land Trust for their thoughtful review and recommendations.

Section 1. Describe the Reservation’s Ecological, Historic, and Scenic Resources

Ecological Resources:

□ **Summary:**

The reservation includes, and is centered upon, a small drumlin with an elevation of 300 feet. This drumlin is open grassland that is maintained through active farming for hay (see Vegetation Communities map). The majority of the grassland is dominated by cool season exotic grasses typical of hay crops (e.g. timothy and orchard grass). The southern third of the grassland has been replanted more recently with an alfalfa mix. Alfalfa typically represents 40% or more of this area. Soil moisture is highly variable. The top of the drumlin is very dry while the lower elevations near the brook are quite wet. Seeps occur, especially on the eastern slope near the bottom of the drumlin where ground water is breaking the surface due to slope. A small grove of black cherry trees occurs on the east shoulder of the drumlin.

A small perennial brook flows along the western and northern edges. Wetland shrubs are common along the brook's banks and pockets of wet meadow occur along its lengths. One of the more notable plants along the brook is Canada lily (*Lilium canadense*), a very showy native wildflower. The portion of hayfield near and along the brook contains many of the wet meadow plants. This area is often cut later than the rest of the property due to saturated soils from high ground water and/or seeps. Field is typically cut up to brook or within a few feet of it. Although no information on butterflies exists for Dexter Drumlin, the fields and

wet meadow areas should provide excellent habitat for butterflies and other invertebrates due to the diversity of plant species, abundant wildflowers and the diversity of open habitats.

The fields provide habitat for grassland nesting birds (bobolink, meadowlark, Savannah sparrow and red-winged blackbird). Tree swallows and eastern bluebirds nest in nesting boxes that have been placed throughout the fields. Exotic house sparrows also compete for these boxes and unfortunately kill many swallows in the process. Song sparrows, yellow warblers, grackles and willow flycatchers use the habitat along the brook. Crayfish and minnows live in the brook while deer and raccoons forage throughout the reservation.

- **Describe the regional landscape, including missing or declining habitats:** Forest and agricultural lands are common but fields are typically fragmented by residential development and tree rows. Both the Nashua and North Nashua Rivers drain the region. Broad floodplain is associated with the Nashua. Protected lands are scattered throughout the local area with the nearby Bolton Flats Wildlife Management Area (~1,000 acres) one of the most significant. The Oxbow National Wildlife Refuge and the South Post of Fort Devens occur to the northeast while the Wachusett Reservoir occurs three miles to the south of the reservation.

The entire reservation is within the Central Nashua River Valley ACEC, a 12,900 acre area important for its extensive surface waters, wetlands, floodplains, aquifers and wildlife habitat. These same wetlands have been identified as High Priority Wetlands for waterfowl production by the USFWS (Tim Prior, USFWS). Unlike the ACEC designation, this designation has no regulatory implication. Likewise, a portion of the property is designated as core habitat on the MNHESP BioMap. The reservation is also located at the confluence of two identified core habitats.

- **Are there any rare species present?** Eastern Bluebird (WL): One pair nested along the brook in a nesting box in 2001.

Grassland Birds (uncommon & decreasing): bobolink, meadowlark and Savannah sparrows breed in the fields. These species, particularly meadowlarks, are declining regionally. It is probable that there are fewer meadowlarks breeding in Massachusetts than bluebirds therefore, meadowlarks should likely be treated as a Watch-Listed species if not a Species of Special Concern.

Grassland birds also breed on the adjacent fields to the north. Much of the river and associated floodplain is Priority and Wetland Habitat for 19 state-listed rare species.

- **Are there priority plant communities present?**
None present on the reservation but Floodplain Forest and Vernal Pools are likely along the Nashua River and its floodplain.
- **Are there any uncommon or decreasing regional communities present?**
Grasslands that serve as viable habitat for grassland obligate species (e.g. bobolink, meadowlark and Savannah sparrow) and small patches of wet meadow along the brook that provide important habitat for plants and invertebrates (e.g. butterflies).
- **How fragmented is the habitat?**
The grassland habitat is mostly intact. However, a mowed trail bisects the grassland and property and potentially threatens wildlife with disturbance from frequent recreational use and may allow predators easy access to core habitat. The southern third of the field has a high percent cover of alfalfa which makes this area less desirable for wildlife (e.g. grassland nesting birds); early cutting of this field also diminishes its habitat value.

Hedgerows fragment adjacent grasslands.

The general area is developing quickly and much of the surrounding area is fragmented by development. The floodplain to the north and east of the property is relatively undeveloped with extensive agricultural lands and forest. Although many acres of grassland occur in the area, the Dexter grassland together with the adjacent grasslands represent one of the largest contiguous grassland habitats in the local area.

- **Describe the reservation's relationship with other protected areas; does the network of protected land provide any landscape ecology functions?**
The reservation is currently isolated as protected open space. Undeveloped but unprotected, lands do occur to the southwest and to the north of the reservation. However, much of the adjacent lands will be subject to regulations intended to protect wetlands, rivers and floodplains (e.g. the Wetlands Protection Act, Rivers Protection Act and regulations associated with the ACEC designation) likely restricting what development can occur in these areas.

The reservation helps protect the Nashua River corridor, water quality in the Nashua River and habitat for regional declining wildlife (e.g. grassland nesting birds). As noted above, the entire reservation is within the Central Nashua River Valley ACEC.

□ **Are non-native or invasive species a problem?**

Yes. Exotic invasives are abundant along hedgerows and the brook. Yellow iris, glossy buckthorn, Japanese knotweed, sedum, multiflora rose, and bush honeysuckle are the most abundant. Grassland habitat is currently not threatened but the riparian habitat is, especially wet meadow areas. A floristic inventory or exotic invasive assessment has not been conducted

Historic Resources:

A stone wall with large granite cap stones runs along the boundary with George Hill Road. Although its age is unknown, this wall is a characteristic feature of the property and serves to define the main entrance. The open agricultural landscape reflects an historic landscape and use that is declining throughout the region and state. Incorporated in 1653, Lancaster was one of the earliest settled towns in central Massachusetts. There are several sites within a mile that relate to King Phillips War (e.g. stone marker directly across the street on Langen Rd., Mary Rowlandson's house site is on the adjacent parcel owned by Quill). Mary was the woman redeemed at Redemption Rock. More research (i.e. cultural resource survey) is needed on the historic and cultural features of the property.

Land Use History:

No cultural resource assessment or land use history assessment has been conducted. It is assumed, however, that the property has been maintained for agriculture for more than 100 years.

Scenic Resources:

- The non-forested drumlin is scenic when viewed from the surrounding roads, especially George Hill Road.
- The long views off of the property from the top of the drumlin are impressive, especially the views of the adjacent agricultural lands and floodplain to the north. The spire of the historic Bullfinch-designed Church in Lancaster center is also visible just to the north. Charles Bullfinch was an important architect in the 1700's and designed the State House in Boston.
- The reservation is part of an area designated by the 1983 DEM Scenic Lands Inventory.
- The entrance stone wall is a prominent scenic feature. It appears to be a designed feature and its construction may have included alterations to the property's topography.

Buildings & Structures:

1. List and describe each building.

None

2. List and describe each structure

The entrance stone wall is more than 200 meters long. This wall is made of mortared field stone with large granite capstones. Wall is in disrepair in places and is leaning severely.

Section 2: Are there factors (real or potential) that threaten the scenic, historic, and ecological resources?

For each of the following types of threats, note which type of resource is at risk and provide a specific description of the threat:

E = ecological, H = historic, S = scenic, B = buildings & structures

<u>Type of threat</u>	<u>Resource Category</u>	<u>Specific Description</u>
Fragmentation	E, S	Trails bisecting core grassland habitat threaten wildlife by providing easy access for predators (e.g. cats) and through frequent disturbance from visitors. The further expansion of hedge/tree rows and islands will fragment the scenic vistas and wildlife habitat if not managed.
Pollution		
Invasive/non-native species	E	Invasive plants are aggressively establishing themselves along the brook compromising wet meadow habitat and threatening plant and habitat diversity.
Cutting	E	Early cutting of fields will threaten grassland nesting birds. Early mowing of fields has also been suggested as limiting the Canada lily population along the brook. Additionally, the height the field is cut may also affect wildlife.
Recreational use	E	Walking, including dog walking can disturb grassland wildlife, especially if dogs are off leash where trails bisect important habitat.
Vandalism/collecting/theft		
Succession	S	Trees growing up along stone wall on George Hill Road threaten to obscure the property from the primary viewing point for the public.
Encroachment	E,S	Atlantic Union College has installed a foundation drain outflow on Dexter Drumlin land. Some erosion is occurring as a result. Also, neighbor at NE corner is mowing part of reservation as lawn. Church of Seventh Day Adventists is seeking right to install sewer line over reservation property. More importantly, the development and or abandonment of the 100 acre property to the north would completely alter the scenic and ecological value of the reservation.
Storm damage		
Past neglect		
Fire		
Environmental conditions (humidity, temp, light)		
Cats and Dogs	E	Neighborhood cats and dogs can disturb and prey on grassland wildlife.

Section 3. Describe Visitor Use

- ❑ **Has a visitor survey been completed?**
No

Visitor Use Patterns:

- ❑ **When does most visitation occur?**

Season: Equally throughout all seasons Time of day: Throughout daylight hours

- ❑ **What are the common visitor activities?**
Walking, dog walking, birding, picnicking, kite flying, stargazing and sledding and cross-country skiing during the winter.
- ❑ **Which is the primary activity?**
Walking

The Quality of the Visitor Experience

- ❑ **Do visitors have the opportunity to find solitude/tranquility? Describe:**
Even though the property is small and adjacent to roadways, visitation is low and visitors typically have the reservation to themselves. Although solitude/tranquility is possible, it is not likely to be a significant feature for this property considering the current constraints. The visitor experience is more likely to focus on scenery, wildlife (e.g. birds and butterflies) and active recreation such as sledding in the winter. The reservation is popular as a lunchtime designation for people locally. In terms of visitor use the property can be likened to a city/town park.

Visitor Services

- ❑ How do we welcome visitors to the property? Are they able to find, access, and navigate the property?

Essentials:	Does it Exist?	Specific Description: age, condition, actively updated?
Entrance sign	Y	
Information bulletin board	Y	
Property description sign	N	Description is included on bulletin board
Trail map	Y	Due to the properties' small size and simple trail design no separate trail map is needed. However, a basic trail map showing trail is posted on the bulletin board and website.
"Rules and Regulations" sign	Y	
Brochure dispenser	Y	
Other:		
Trail markers or other helpful signs	N	

Suggestion box	N	
Donation tube/cylinder	N	
Roadside directional signs	N	

- What kind of interpretive material or programming is provided?

Type of interpretation:	Does it exist?	Specific description
Trailside/wayside displays	N	Currently no interpretive information exists. There is good opportunity for interpretive information on grassland habitat and management. In addition there may be good opportunity to interpret local history associated with King Phillip.
Interpretive brochures	N	
Guided programs	N	
Self-guided tour	N	
School-based educational programs	N	
Web site	Y	
Seminars	N	
Other:		

- What visitor facilities are provided?

Facility:	Does it exist?	Specific description
Restrooms	N	
Parking area(s)	Y	There is room for several cars to pull off of road. When the clearing of trees along the wall is completed there will be parking for up to 15 cars.
Food services	N	
Drinking water	N	
Visitor center	N	
Telephone	N	
Picnic area	N	Visitors can picnic on top of drumlin and on stone wall.
Ranger station	N	

- **Trails: what are their condition and how many miles?**

A short loop trail, approximately one mile long, ascends to the summit and down to the brook, bisecting the property and then loops back along the brook to the parking area (see Base Map). Surface is grass.

Section 4: Are there factors (real or potential) that diminish the quality of the visitor experience?

Factor	Specific description
Inadequate facilities	
Inadequate information	
Visitor conflicts	None known
Congestion	
Damaged resources	Increased disturbance from visitors may threaten the presence of grassland birds thus, reducing the opportunity for visitors to see and hear these species. In addition, at least one visitor has expressed concern for grassland birds due to early mowing of the field.
Illegal activities	Illegal use of property by snowmobiles and other motorized vehicles.
Off-site activities	Development and/or agricultural abandonment of the adjacent 194 acre parcel would significantly detract from the visitor experience by eliminating the primary scenic value.
Trail conditions	

Additional Comments:

The adjacent 194 acre parcel abutting the reservation to the north is critical to maintaining the significance of grassland habitat and scenic significance at Dexter Drumlin. This parcel's protection would greatly expand the recreational opportunities of the reservation.

Section 5: Are there other things to consider when developing the management program?

Donor's Wishes:

None

Economic Considerations:

Currently, a local farmer (Walter Kilbourn) hays the fields for no payment following guidelines developed in conjunction with The Trustees' Field Operations staff, see attached Cutting Schedule map. However, if no farmer is available to hay fields, The Trustees' staff will need to mow the fields or The Trustees will need to contract with someone else to cut the fields.

Land Conservation:

An assessment of critical lands near Dexter Drumlin was conducted by Land Conservation, Planning & Ecology, and Central Region staff. "Critical Lands" are defined as the privately held in-holdings, adjacent properties, and nearby lands important to the character, integrity and efficient management of Dexter Drumlin. The assessment resulted in a ranking of abutting and nearby properties using to the following categories:

- **Critical:** Parcels whose preservation is essential to the protection and integrity of key features on the reservation, such as wetland and aquifer

recharge areas, hilltops and other unique landforms, scenic roads or road frontages, special vegetative features, or scenic views seen from the reservations.

- Significant: Parcels whose preservation would add significantly to the reservation, but whose loss would not detract significantly from the character and quality of the reservation.
- Valuable: Parcels whose preservation would add to the scenic, historic or ecological value of the reservation or would contribute to its efficient management, but are not considered critical or significant (e.g. contiguous parcels of land without unique features).
- Otherwise protected: Parcels already sufficiently protected by a conservation restriction, APR, or other means so as not to warrant further protection efforts.
- No conservation value: None of the above.

The critical lands assessment identified 14 critical parcels, 13 significant parcels, 17 valuable parcels, and the remainder of no conservation value. The critical parcels are primarily lands with high ecological value, or properties that are an important part of the scenic viewshed of Dexter Drumlin. Several parcels could also form part of a protected corridor to nearby conservation lands. A complete listing of the Critical Lands is available.

The highest priority critical land identified by the assessment is Parcel 1, the 194 acre parcel owned by Stephen and Maureen Quill. This parcel should be considered critical to maintaining the ecological significance of Dexter Drumlin. It directly influences the value of grassland habitat on the reservation, its most significant ecological feature. Preservation of this parcel could provide the opportunity to improve its ecological value by converting the cornfields to hay or other grassland to greatly expand the grassland habitat available at this site and improve the ecological value of this parcel and its value to the reservation. In addition, preservation of this parcel would greatly expand the ecological significance of the reservation to include riparian and floodplain habitat.

Anything else?

Section 6: Based on the information in Steps 1-5, describe the reservation's most significant features in terms of resources and visitor experience.

1. Scenic features
 - Drumlin as non-forested feature visible from road.
 - Long vistas from top of drumlin, especially looking north/northeast.
2. Ecological features
 - Viable habitat for grassland-nesting birds.
 - Wet meadow and riparian habitat.
3. Historic/Cultural features
 - Stone wall along George Hill Road.

Section 7: What are the management goals and objectives based on the above?

Goal: Maintain reservation's scenic significance by maintaining open character of landscape.

Objective: Maintain existing field area as open grassland.

Objective: Improve visibility of drumlin from George Hill Road.

Objective: Pursue protection of adjacent fields and floodplain.

Goal: Maintain significant wildlife habitat and species.

Objective: Manage grassland as viable habitat for plants and wildlife.

Objective: Maintain wet meadow habitat for plant and animal diversity.

Goal: Maintain significant historical/cultural features.

Objective: Stabilize and repair rock wall along George Hill Road as needed to maintain in safe condition.

Objective: Conduct cultural resource assessment.

Goal: Provide visitors with a high quality experience.

In addition to the above goals and objectives, which contribute significantly to the visitor experience, the following objectives are intended to enhance the visitor experience:

Objective: Provide visitors with interpretive material on significant Features and management-related issues.

Objective: Prevent motorized vehicles from entering property.

Section 8: Recommended Actions

Scenic Resource Management

As described in Section 1, Dexter Drumlin has significant scenic resources. These resources are inextricably tied to the open character of the landscape, including adjacent parcels. This openness is paramount to the visitor experience at Dexter Drumlin and is increasingly uncommon at this scale. Therefore, maintaining the open character at Dexter Drumlin will be critical.

Objective: Maintain existing field area as open grassland.

Current Management

The field is hayed annually by a local farmer. The alfalfa is typically cut earlier than the rest of the field.

Threats and Issues

- Exotic invasive plants are colonizing the field edge, particularly along the wet meadow.

Recommended Management

Action	Description/Rationale
Annually mow/hay field. See natural resource management section below.	Cutting field at least once annually will maintain the property's open character.
Remove island of black cherry and shrubs on eastern slope of Drumlin.	This isolated stand of trees obstructs views and fragments grassland habitat.

Objective: Improve visibility of drumlin from George Hill Road.

Current Management

Past neglect allowed trees to grow along the stone wall paralleling George Hill Road and thus screened Dexter Drumlin from view. Limited clearing of trees in 2001 partially opened up this view.

Threats and Issues

- Woody plants redeveloping along wall.
- Clearing of trees exposes parts of the wall that are falling apart, thus introducing safety issues.

Recommended Management

Action	Description/Rationale
Continue to clear trees from stone wall along George Hill Road.	Removing these trees will improve visibility from George Hill Road. Removing trees will also return the property to its historical condition. Trees are young and thus clearly represent a recent development.
Repair stone wall as needed.	See below section on cultural/historic features.

Objective: Pursue protection of adjacent fields and floodplain.

Threats and Issues

- The fields and floodplain to the north of Dexter Drumlin provide visitors with the primary scenery associated with the reservation and contribute significantly to the reservation's ecological significance. Major changes to land management (e.g. development or agricultural abandonment) would significantly reduce the scenic and ecological values of Dexter Drumlin.

Recommended Management

Action	Description/Rationale
Land Conservation develops critical lands action plan and makes initial contact with critical lands owners.	A critical lands action plan will identify possible strategies for land protection including potential funding. The plan will also allow The Trustees to track changes with land ownership and management. Initial contact will let owners know about options for protecting their lands and who to contact at The Trustees.

Natural Resource Management

The thrust of natural resource management will focus on managing the field and wet meadow as habitat for dependent species. Specific conservation targets within these habitats include grassland nesting birds and wildflowers as indicators of habitat quality. The recommendations below are based on the significant ecological features, threats and opportunities identified in Sections 1 and 2.

Objective: Maintain grassland as viable habitat for plants and wildlife.

Current Management

The field is hayed annually. The alfalfa is cut earlier than the remaining field. A cutting plan was developed in conjunction with the current farmer in December, 2002 that takes grassland wildlife into consideration, see attached memo.

Threats and Issues

- Exotic invasive plants are colonizing the field edge, particularly along the wet meadow.
- Unleashed dogs can disturb and displace grassland nesting birds during breeding season.
- Visitors walking through fields can disturb and displace grassland nesting birds during breeding season.
- The timing and height of mowing can harm wildlife, especially ground nesting grassland birds.

Recommended Management

Action	Description/Rationale
Implement The Trustees' grasslands management guidelines.	The property superintendent and regional ecologist will work together to develop management recommendations for field cutting.
Monitor for exotic invasive plants and control as needed.	Although invasives are not currently a problem within the grassland, monitoring for these species will facilitate early detection and control.
Monitor grassland birds.	Annual monitoring will allow managers to assess timing of cutting and quality of habitat.
Interpret grassland issues and management to visitors.	Educating visitors on grassland issues will reduce impacts to wildlife and help reduce conflicting attitudes on management.
Require dogs be leashed during May-August to prevent disturbance to birds.	Leashing dogs will reduce impacts to grassland wildlife during breeding season.

Maintain bird nesting boxes, but discontinue if swallow mortality is high due to competition with house sparrows.	Nesting boxes provide valuable nesting habitat for both eastern bluebirds and tree swallows at the property. However, the exotic and very aggressive house sparrow competes for these boxes, frequently killing bluebirds and swallows.
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Objective: Maintain wet meadow habitat for plant and animal diversity.

Current Management

The area of wet meadow east of the brook is hayed annually with the rest of the grassland. The wet meadow on the west side of the brook receives no management.

Threats and Issues

- Exotic invasive plants are colonizing and threatening to reduce plant diversity.
- The timing and frequency of mowing can impact wildflower development and productivity.

Recommended Management

Action	Description/Rationale
Control exotic invasive plants along brook and wet meadow.	The property superintendent and regional ecologist will work together to develop recommendations on invasive species control. Without control, invasives will likely overrun this habitat, threatening species diversity.
Monitor Canada lily population as indicator of the quality of wet meadow habitat.	Canada lilies are very showy native wildflowers. Although not rare (state-listed), they are typically uncommon. Mowing may be restricting and/or reducing the population at Dexter Drumlin. Annual monitoring will allow managers to assess timing of cutting and quality of habitat.

Cultural Resource Management

Goal: Maintain significant historical/cultural features.

Objective: Stabilize and repair rock wall along George Hill Road as needed to maintain in safe condition.

Current Management

Trees have been cleared from a portion of the wall in 2001.

Threats and Issues

- Loose rocks can represent a safety hazard to people (e.g. people using wall to sit on).
- The wall can look unsightly and compromise the scenic value of Dexter Drumlin.
- The wall includes the main entrance to the reservation.
- Tree roots destabilize wall.

Recommended Management

Action	Description/Rationale
Hire contractor to repair wall.	Repairing wall will reduce liability/accidents, maintain a significant cultural feature, improve the scenic value from the entrance and George Hill Road.

Objective: Identify the reservation's cultural and historic significance.

Threats and Issues

- Little is known about the property's history and associated people and events.

Recommended Management

Action	Description/Rationale
Conduct cultural/historic resource assessment.	A cultural resource assessment will identify significant cultural/historic features and/or events associated with the property. These features can then be assessed for management needs and/or interpreted to the public.

The Visitor Experience

Section 7 touched on several important elements that contribute to the visitor experience at Dexter Drumlin including scenery. Section 7 also identified significant threats and opportunities relating to the visitor experience. The following recommendations are designed to protect those outstanding visitor features and to mitigate or prevent factors that may threaten the visitor experience.

Goal: Provide visitors with a high quality experience.

In addition to the above goals and objectives, which contribute significantly to the visitor experience, the following objectives are intended to enhance the visitor experience:

Objective: Provide visitors with interpretive material on significant features and management-related issues.

Threats and Issues

- Little is known about the property's history and associated people and events.
- Grasslands management as an issue.
- Some of the proposed regulations and/or management actions (e.g. grasslands management) in this plan may need to be highlighted with additional information for our visitors in order to encourage their participation since some regulations or management actions may prove controversial or easily ignored (e.g. seasonal leashing of dogs).

Recommended Management

Action	Description/Rationale
Interpret cultural/historic features and issues to visitors.	If a cultural/historic resource assessment reveals significant features they should be interpreted for visitors.
Provide additional information on select regulations to encourage visitors to cooperate with The Trustees in protecting significant ecological resources.	Some proposed management actions intended to reduce disturbance to grassland wildlife, e.g. requiring the leashing of dogs during nesting season, may need to be explained to our visitors to both educate them on this important issue and to encourage their cooperation.

Objective: Prevent motorized vehicles from entering property.

Threats and Issues

- Motorized vehicles disrupt the reservations tranquility and damage scenic and natural resources.

Recommended Management

Action	Description/Rationale
Install gates at brook crossing and George Hill Road.	Gates will prevent vehicles from gaining access from these locations.
Monitor vehicle access along NE boundary. Repair fence as necessary.	Current fence is in disrepair allowing snowmobiles and off-road vehicles potential access once gates have been installed (see above action step). The fence may need to be repaired if monitoring reveals use by off-road vehicles.

Section 9: Implementation

Section 8 outlines the recommended actions needed to meet the goals and objectives for protecting Dexter Drumlin's scenic, natural and cultural resources while at the same time providing visitors with a high quality experience. Financial resources permitting, Section 9 outlines how these actions will be implemented.

The Implementation Table lists all of the recommended actions and their assigned implementation, and identifies the resources that will be needed to implement the action steps. If an action step requires new resources, human or financial, it has been bolded.

Table 1 summarizes the new financial and volunteer resources required to implement the recommended actions and provides an estimate of the total cost of implementing this management plan (in 2002 dollars). It is important to note that these estimates do not reflect some key action steps, such as controlling exotic invasive plants, where the costs are not yet known.

Table 1: Implementation Costs

	<u>New Costs</u>	<u>Additional Staff Hours</u>	<u>Additional Volunteer Hours</u>
FY 04-05	\$8,500	112	150
Ongoing (annually)	0	0	10
Total	\$8,500	112	160

Plan Monitoring and Review

This management plan will inform the development of annual work plans for the staff that are responsible for managing Dexter Drumlin. The staff will review the progress on recommendations and will summarize progress and revisions in memo form for inclusion with the management plan.

Implementation Table

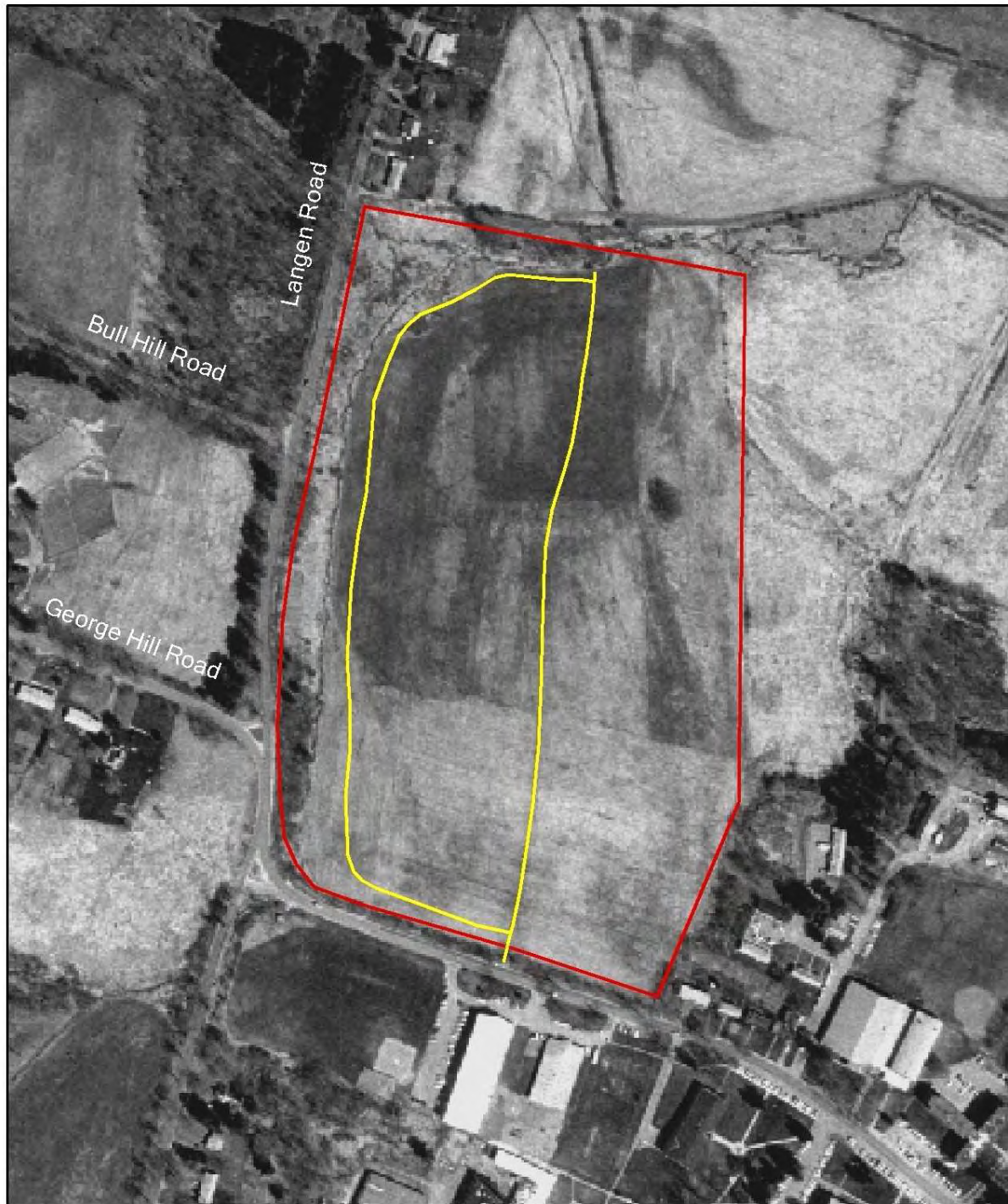
Action	Implementation	Description/Rationale	Resources Needed
Annually mow/hay field.	Annually	Cutting field at least once annually will maintain the property's open character.	No additional resources needed as of 2003. Local farmer is willing to cut per guidelines developed with farmer and TTOR staff.
Remove island of black cherry and shrubs on eastern slope of Drumlin.	FY 04-05	This isolated stand of trees obstructs views. In addition, if haying/mowing is reduced the location of these trees in the middle of the field will likely facilitate the invasion of the fields by black cherry (an early successional species) and other woody plants.	16 hours of staff time. No additional equipment needed.
Continue to clear trees from stone wall along George Hill Road.	FY 04-05	Removing these trees will improve visibility from George Hill Road. Removing trees will also return the property to its historical condition. Trees are young and thus clearly represent a recent development.	40 hours of staff time. No additional equipment needed.
Repair stone wall as needed.		See below section on cultural/historic features.	
Land Conservation develops critical lands action plan and makes initial contact with critical lands owners.	FY 04-05	A critical lands action plan will identify possible strategies for land protection including potential funding. The plan will also allow The Trustees to track changes with land ownership and management. Initial contact will let owners know about options for protecting their lands and who to contact at The Trustees.	Approximately 16 hours of additional staff time.

Implement The Trustees' grasslands management guidelines.	FY 04	The property superintendent and regional ecologist will work together to develop management recommendations for field cutting.	Recommendations developed jointly with farmer and staff in 2002 that incorporate ecological guidelines.
Monitor for exotic invasive plants and control as needed.	Annually	Although invasives are not currently a problem within the grassland, monitoring for these species will facilitate early detection and control.	No additional resources needed. Existing staff can monitor and control.
Monitor grassland birds.	Annually	Annual monitoring will allow managers to assess timing of cutting and quality of habitat.	Engage volunteer (4 hours, ~ 4 visits) to monitor population
Interpret grassland issues and management to visitors.	Annually	Educating visitors on grassland issues will reduce impacts to wildlife and help reduce conflicting attitudes on management. Information can be posted on bulletin board.	No additional resources needed.
Require dogs be leashed during May-August to prevent disturbance to birds.	Annually	Leashing dogs will reduce impacts to grassland wildlife during breeding season. Temporary signs can be placed on bulletin board and at trail entrance.	No additional resources needed.
Maintain bird nesting boxes, but discontinue if swallow mortality is high due to competition with house sparrows.	Annually	Nesting boxes provide valuable nesting habitat for both eastern bluebirds and tree swallows at the property. However, the exotic and very aggressive house sparrow competes for these boxes, frequently killing bluebirds and swallows.	Engage volunteer (4 hours) to maintain nesting boxes and to monitor bird populations
Control exotic invasive plants along brook and wet meadow.	FY 04-05	The property superintendent and regional ecologist will work together to develop recommendations on invasive species control. Without control, invasives will likely overrun this habitat, threatening species diversity.	No additional resources needed to develop control strategy. Actual control will likely require additional resources (e.g. labor, herbicide).

Monitor Canada lily population as indicator of the quality of wet meadow habitat.	Annually	Canada lilies are very showy native wildflowers. Although not rare, they are typically uncommon. Mowing may be restricting and/or reducing the population at Dexter Drumlin. Annual monitoring will allow managers to assess timing of cutting and quality of habitat.	Engage volunteer (2 hours) to monitor population.
Hire contractor to repair wall.	FY04	Repairing wall will reduce liability/accidents, maintain a significant cultural feature, improve the scenic value from the entrance and George Hill Road.	Estimate ~ \$7,500 for worst 60 feet
Conduct cultural/historic resource assessment.	As soon as resources are available	A cultural resource assessment will identify significant cultural/historic features and/or events associated with the property. These features can then be assessed for management needs and/or interpreted to the public.	Utilize intern or volunteer (150 hours) .
Interpret cultural/historic features and issues to visitors.	Following cultural resource assessment.	If a cultural/historic resource assessment reveals significant features they should be interpreted for visitors. Information can be posted on bulletin board.	No additional resources needed.
Provide additional information on select regulations to encourage visitors to cooperate with The Trustees in protecting significant ecological resources.	Annually	Some proposed management actions intended to reduce disturbance to grassland wildlife, e.g. requiring the leashing of dogs during nesting season, may need to be explained to our visitors to both educate them on this important issue and to encourage their cooperation.	Property staff will work with the Communications and Marketing Department to develop signage.
Install gates at brook crossing and George Hill Road.	FY 04-05	Gates will prevent vehicles from gaining access from these locations.	\$ 1,000 for materials. Construction and installation will be conducted by staff, ~ 40 hrs.

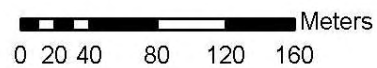
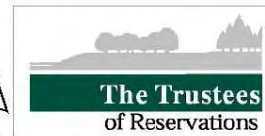
<p>Monitor vehicle access along NE boundary. Repair fence as necessary.</p>	<p>Annually</p>	<p>Current fence is in disrepair allowing snowmobiles and off-road vehicles potential access once gates have been installed (see above action step). The fence may need to be repaired if monitoring reveals use by off-road vehicles.</p>	<p>No additional resources needed at this time. If repairs to the fence are necessary in the future some material and labor costs are likely.</p>
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Dexter Drumlin - Base Map

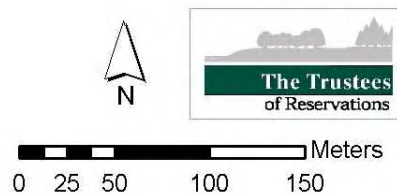
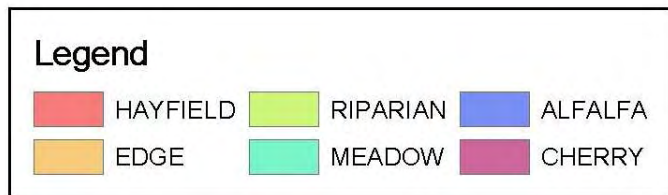


Legend

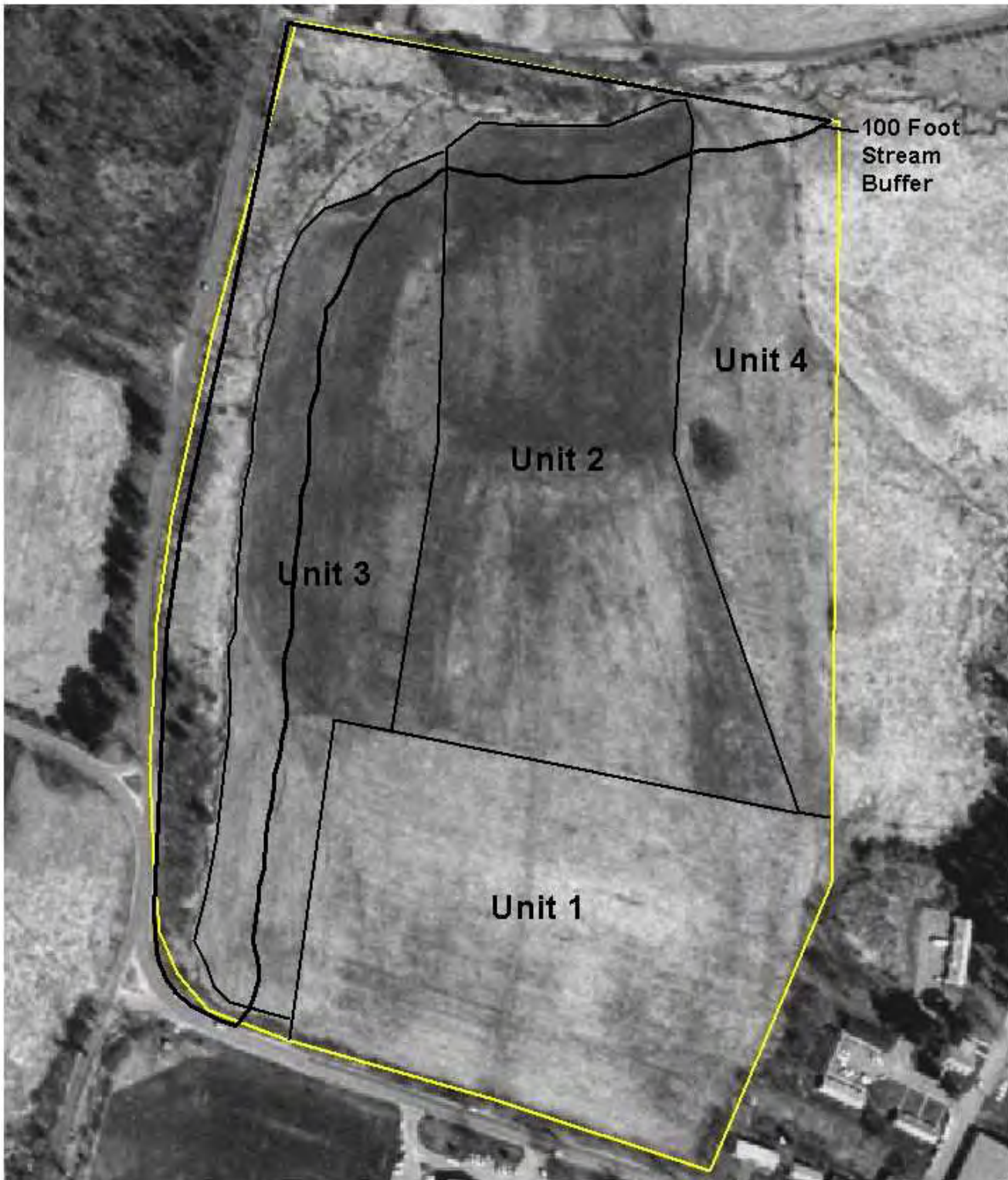
-  Property Boundary
-  Trails



Dexter Drumlin - Vegetation Communities



Dexter Drumlin - Cutting Schedule



Units 1 & 2 - Cutting can occur on or after June 1 with up to 2 additional cuts within season.

Units 3 & 4 - Cutting occurs no less than 30 days after the first cut for units 1 & 2.

Only 1 cut per season.