TOWN OF CHATHAM MASSACHUSETTS

Chatham Conservation Land Management Project

November 2007

Prepared by
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CONTENTS

Cover Photo: #7 Mill Pond Forest Trail, F. McClennen

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Kristin Andres
Conservation Agent
Chatham Conservation Commission
261 George Ryder Road
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November 30, 2007

Ms Andres,

I am pleased to submit this final report of the Chatham Conservation Land Management Project. My Team of Alan McClennen, Jr., Eliza McClennen and myself have visited virtually all of the Conservation Parcels over the past year, while Team member Seth Wilkinson has focussed on 4 selected sites for Invasive Species Management. Photographs have been provided by Fran McClennen.

With each site inspection we have considered existing conditions and potential problems and have given suggestions for different management issues and solutions. In addition to the field study approach, we have also considered how the Conservation Areas can best be managed from an administrative perspective. In this regard we have created a Conservation Land Management Database that can be used to track information currently stored in the "Green Folder" System. This data base can not only be linked to the GIS Assessors Parcels for mapping and spatial analysis purposes, but it can also be revised to best meet the needs of the Conservation Commission. New data fields can easily be added as deemed useful, and the order of the data fields can be rearranged as desired.

We have enjoyed this look at many hidden environments, and hope that the information presented here will help the Conservation Commission meet and balance of demands of both public enjoyment and environmental protection.

Sincerely,

Herb Heidt
Cartographer

I
INTRODUCTION

Chatham Conservation Land represents a wide variety of landscapes and environments that are in many cases hidden from public view or knowledge. Those who think Chatham is only a quaint historic village with its' Light House Beach and Stage Harbor, will be surprised by the lengthy woodland walks available for public enjoyment. The challenge for the Conservation Commission is to encourage proper use of these areas without overuse and to discourage misuse. Proper Environmental and Land Use Management is critical and funding should be sought to provide suitable enhancements and deal with issues of invasive plant species. While there are concerns that overuse may result in environmental degradation, it is not unusual for frequently used open space to become "self maintained" by those who are regular users. Problems are more likely to arise when an area is deemed hidden from view and thus "safe" for inappropriate activities. As Chatham addresses issues related to management of its Conservation Land, it is apparent that there are three primary components that must be addressed; Administrative, Land Use Management and Environmental.

The Administrative Component addresses record keeping and administrative issues. Of primary importance is that all Conservation Parcels be clearly recorded as such by the Town, in order to avoid confusion over any possible alternative uses. Oversight should be able to be clarified by the reasons for the original gift, purchase or taking. The Conservation Commission should work with the Assessors to see that departmental oversight is clearly recorded in the Assessors Data Base as "OWNER 2" with "OWNER 1" Being the Town of Chatham. In addition, the Assessors could take advantage of the fourth place/digit in "ASSES CODE 1" (Land Use Code) to designate departmental oversight. Under the Massachusetts Department of Revenue Guidelines, 900 indicates Tax Exempt Properties and 903 indicates Tax Exempt Municipal Property. Since the Chatham Assessors use 9030 for municipal property, they could use the a fourth number to indicate department. If 9031 indicated Property of under the Selectmen, subsequent numbers could be assigned to other department such as 9036 to indicate land under Conservation Commission oversight.

In an effort to more permanently protect Conservation Land, the Conservation Commission should work to place Conservation Restrictions over at least the potentially buildable sites. Surveying of Conservation Property Bounds is also encouraged to help clarify areas of possible and potential encroachment. Questions pertaining to State Natural Heritage and Endangered Species designated areas may also need administrative attention. Other suggested administrative changes will help simplify the record keeping process, and thus improve the overall management of Conservation Land. Changes will allow for improved data management and GIS mapping.

The Land Use Management Component involves land use, public access and enhancement issues. Sites with existing trails have been assessed for public access, trail conditions and potential for additional trails. Other sites have been assessed for the suitability/appropriateness for trails and other forms of passive recreation. This component also addresses public access issues related to parking and ADA access and compliance, as well as public use problems related to dumping and other forms of damage or encroachment. Another public use issue that bridges into the Environmental Component is nuisance vegetation such as Poison Ivy and Green/Cat Briar, which can limit trail use.

The Environmental Component addresses existing environmental conditions/characteristics and issues of invasive species. In the management of Chatham Conservation Land, it is invasive vegetation that is the primary area of concern. Areas are ranked according to the perceived importance of controlling invasives, as related to the restoration and or protection of significant habitats. Nuisance vegetation species such as Poison Ivy and Green/Cat Briar are also addressed. Detailed model Invasive Species Management Plans are provided for 4 sites as Appendices.

While each parcel has its own issues related to these three categories, it is beyond the scope of this project to provide a detailed management plan for each parcel. The Conservation Management Plan prepared by the Compact of Cape Cod Conservation Trusts, Inc. for the McCoy Tree Farm property is an example of a single site Management Plan that could be used as a model if that approach is determined to be necessary in the future. Many sites however, do have common issues that might be best addressed together in a more cost-effective manner. Rather than solve all issues of one site before moving on to the next, it might be more productive and cost effective to address common issues at multiple sites at the same time. This will allow multiple sites to receive remmediation or enhancements without waiting for all aspects of its management to be addressed at once.

#101 Ivy Lane-Black Pond Invasives, F. McClennen

II
BASELINE INFORMATION

The individual site maps, data sheets and records from the Chatham Conservation Commission files along with other Town of Chatham maps and data files were used for the site inspections. Since this base information is instrumental in categorizing and prioritizing the sites, by character, issues, size or proposed actions, it was important that this information be put in digital form for ease of access, organization and comparison/prioritization of sites and for mapping. The preparation of a Master Conservation Spreadsheet/Database, The Conservation Land Management Database, allows sites to be sorted or mapped by any number of categories and rankings or combinations thereof.

Conservation Land Management Database Description

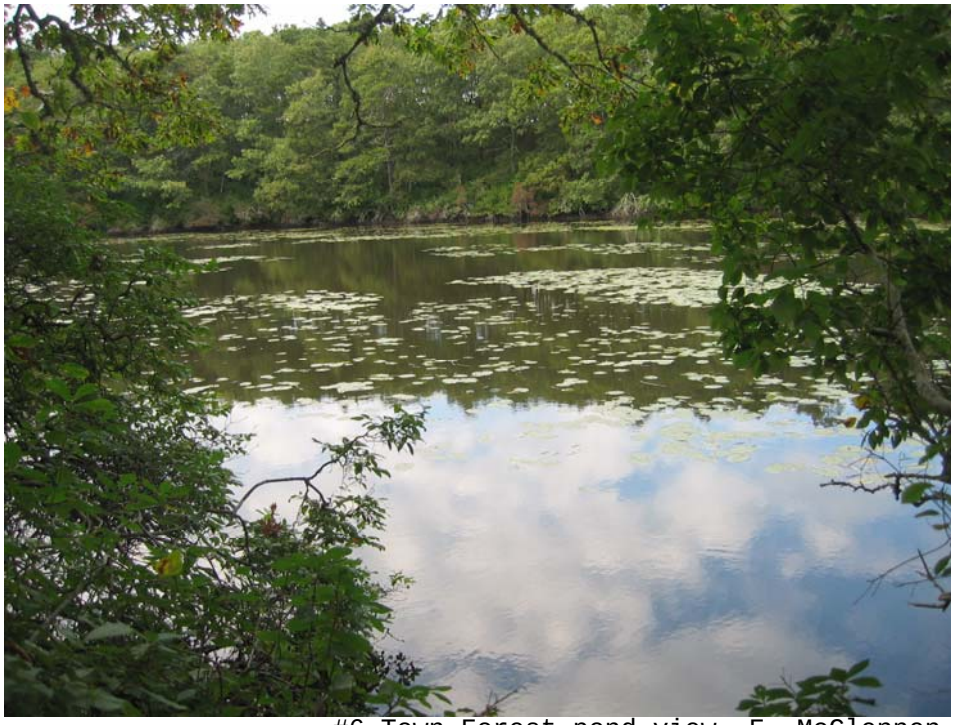
This new Conservation Land Management Database has been created as an Excel Spreadsheet for quick reference, queries and manipulation. It has been built on the Town of Chatham Assessors Database linked to the town GIS Parcel Map, with relevant Assessors Data. This Database will allow the Conservation Commission/staff to do future searches, add fields as needed and produce map displays showing the spatial relationships of sites with similar issues or priorities. At a minimum, the spreadsheet can be used to track the information on the existing Property Baseline Fact Sheets (PBFS) and Property Data Report Forms (PDRF). Information from other Town of Chatham spreadsheets such as the Chatham Town Properties: Acquisition Purposes and Deed Restrictions (CTP-AP/DR) and Chatham Town Properties: Major Documents on File (CTP-MD), which include information available for each site, has also been included. Information from past and recent site visits has been included, but may require further refinement to best meet the needs of the Conservation Commission and its staff, along with the addition (or deletion) of categories as deemed useful.

To facilitate the mapping/GIS process, site visit information has been entered where possible with definite YES or NO entries with additional comment fields for reference. Where information is not known to be a definite YES or NO (or other category) the entry is dashes (---) to indicate the data cell has been addressed but could be subject to updating. This is particularly true in the site vegetation records, where a particular species may not have been seen, but that is not to say that it does not exist somewhere on the site. As more site reviews take place in the future, these dashes may be replaced with a YES or NO entry. Similarly, if the “Chatham Town Properties: Major Documents on File” (CTP-MDF) does not indicate the existence of a document, that data field has been dashed (---) until said document is located or deemed not to exist.

The database approach allows for easy cross-referencing and comparisons that are difficult with the existing "file folder" system. It will allow the Conservation Commission to sort or map sites based on any criteria or combination of criteria that may be useful for both management and budget planning. Sites can be sorted or mapped on the type of invasive species present, so that similar control measures can be implemented on adjacent sites at the same time, in a cost-effective manner. Such compromised sites can also be sorted or mapped according to NHESP Habitat to ensure that control measures are appropriate. Sites can be sorted or mapped according to those with potential for new trails requiring funding, or sites can be sorted or mapped according to dumping or other human encroachment to address monitoring and patrol issues.

Converting the Conservation Land management Database to a dbf file allows the Database to be linked to the Town GIS Parcel Map. This will allow the Town to produce digital maps that select parcels based on specific criteria, or combination of criteria, such as all sites with trails, all sites with deed restrictions, all sites with a particular invasive species, etc. While the database will allow for comparisons of issues and characteristics, the ability to display the information in GIS map format, will allow the Town of Chatham to look at spatial relationships which may be important in the planning and management process and may not otherwise be evident. This allows similar issues at adjacent sites to be addressed in more cost-effective ways.

The Conservation Land Management Database can be easily updated as more detailed site assessments are carried out, as site conditions change and as new Conservation Land is acquired. Historic site records can be maintained by locking and saving a copy of the Database on an annual basis, and thus maintaining a complete record for each year.



#6 Town Forest pond view, F. McClennen

Conservation Land Management Database Data Field List

Key: Field Data Source - First Header Line in Data Base

ADB	Assessors Data Base
2003-CP	2003 Comprehensive Plan
MapWrks	MapWorks (Site Visits / Research)
GIS MAP	Printed GIS Map (from Green Folder)
GIS	Town GIS Database Files
PBFS	Property Baseline Fact Sheet (from Green Folder)
PDRF	Property Data Report Form (from Green Folder)
CTP	Chatham Town Properties Lists
CTP-MDF	Chatham Town Properties: Major Documents on Files
CTP-AP/DTR	Chatham Town Properties: Acquisition Purposes & Deed/Title Restrictions
TM-A/D	Town Meeting Article or Deeds
2007-CLMP	2007 Conservation Land Management Project
NHESP	Natural Heritage and Endangered Species Program - Massachusetts
FIRM	Flood Insurance Rate Map - National Flood Insurance Program
GREEN F	Green Folder

Key: Data Field Name - Second Header Line in Data Base

Data Base Field (2nd Header Line)	Content	Source (1st Header Line)
LRP#/A	Combined LRP Number and Letter code	2003-CP
VISION ID	ID link to Town Parcel Map and ADB	ADB
ALT ID	Assessors Combined Map, Block, Lot	ADB
Alternate Name	Suggested new name for clarity	MapWrks
LRP#	Site Number	2003-CP
LRP-A	Letter code for parcels with one LRP#	2003-CP
MAP	Assessor Map Number	ADB
BLOCK	Assessors Block Number	ADB
LOT	Assessors Lot Number	ADB
ST NUM	Assessors Street Number	ADB
STREET NAME	Assessors Street Name	ADB
TOTAL LAND AREA	Assessors Land Area	ADB
GIS PARCEL AREA	Area as calculated by GIS	GIS
PBFS Acreage	Area as Recorded in PBFS	PBFS
ZoneGrid	Town Grid Location	Green F
Green Folder Name	Conservation Commission Name	Green F

Alternate Name	Suggested new name for clarity	MapWrks
Tracking Notes & Query	Oversight and Parcel Questions	MapWrks

BASELINE INFORMATION continued

Data Base Field (2nd Header Line)	Content	Source (1st Header Line)
Grantor	Previous Owner	PBFS
Acquisition	Acquisition Type	PBFS
Land Bank	Land Band Purchase	PBFS
TM Action	Date of Town Meeting Action	PBFS
TM Article	Town Meeting Article	PBFS
Title Trans	Title Transfer Date	PBFS
Book	Registry of Deeds Book Number	PBFS
Page	Registry of Deeds Page Number	PBFS
Cert No	Registry District of Barnstable County Num	PBFS
ProtectType	Type of Protection	PBFS
CC-Oversite	Conservation Commission Oversight	PBFS
CC-OS Date	Conservation Commission Oversight Date	PBFS
Access	Site Access	PBFS / MapWrks
Property	Property Name	CTP
Section	Sub-Section Information or Note	CTP
Deed/Title	Document Exists	CTP-MDF
Order of taking	Document Exists	CTP-MDF
Warrant Article	Document Exists	CTP-MDF
Site Plan	Document Exists	CTP-MDF
8.5x11 SitePlan	Document Exists	CTP-MDF
Comment	Comment	CTP-MDF
Conserv Acq	Conservation Acquisition	CTP-AP/DTR
Watershed Acq	Watershed Acquisition	CTP-AP/DTR
Park/OpenSpace	Park/Open Space Acquisition	CTP-AP/DTR
Passive Rec Acq	Passive Recreation Acquisition	CTP-AP/DTR
General Rec Acq	General Recreation Acquisition	CTP-AP/DTR
CR	Conservation Restriction Placed on Property	TM-A/D
CR Holder	Holder of CR	TM-A/D
Conservation	Restricted by Deed/Title	CTP-AP/DTR
Chap40 8 c Restr	Restricted by Deed/Title	CTP-AP/DTR
Open Space Restr	Restricted by Deed/Title	CTP-AP/DTR
Passive Rec Restr	Restricted by Deed/Title	CTP-AP/DTR
Park Only Restr	Restricted by Deed/Title	CTP-AP/DTR
No Structures	Restricted by Deed/Title	CTP-AP/DTR
No Camping	Restricted by Deed/Title	CTP-AP/DTR
Other Deed Restrictions	Other Deed Restrictions	Deeds
phab-PHRS	Priority Habitat of Rare Species 2006	NHESP
prihab-PHRS	Priority Habitat of Rare Species 2003	NHESP
wthab-EHRW	Estimated Habitat of Rare Wildlife 2006	NHESP
esthab-EHRW	Estimated Habitat of Rare Wildlife 2003	NHESP

Vernal Pool-Cert	Certified Vernal Pool 2006	NHESP
Vernal Pool-Potn	Potential Certified Vernal Pool 2006	NHESP
2008 Visit	Field to record date of Future Site Visit	---
2008 Name	Field to record name of future site visitor	---

BASELINE INFORMATION continued

Data Base Field (2nd Header Line)	Content	Source (1st Header Line)
2007 Visit	Date of 2007 Site Visit	MapWrks
2007 Name	Name of 2007 Site Visitor	MapWrks
2006 Visit 2	Date of second 2006 Site Visit	MapWrks
2006 Name 2	Name of second 2006 Site Visitor	MapWrks
2006 Visit 1	Date of first 2006 Site Visit	PDRF
2006 Name 1	Name of first 2006 Site Visitor	PDRF
2005 Visit	Date of 2005 Site Visit	PDRF
2005 Name	Name of 2005 Site Visitor	PDRF
2004 Visit	Date of 2004 Site Visit	PDRF
2004 Name	Name of 2004 Site Visitor	PDRF
Management Rank	Priority Ranking	2007-CLMP
Invasive Veg Rank	Priority Ranking	2007-CLMP
% Wooded	Approximate Percent Forest Cover	PDRF / Mapwrks
% Open	Approximate Percent Open	PDRF / Mapwrks
% Scrub	Approximate Percent Scrub	PDRF / Mapwrks
Under Story	Open, Scrub, etc.	PDRF / Mapwrks
Woodlands	General Characteristics	PDRF / Mapwrks
Pitch Pine	YES seen / NO not present / --- not seen	PDRF / Mapwrks
White Pine	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Oak	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Cedar	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Sassafras	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Cherry	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Maple	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Poplar	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Locust	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Other	Other trees	PDRF / Mapwrks
Wetlands	Yes- Presence / NO-Absence	PDRF / Mapwrks
Wetlands Type	General characteristics	PDRF / Mapwrks
Pond/Water	Type of open water	PDRF / Mapwrks
Water front	General Characteristics	PDRF / Mapwrks
Flood Zone	Flood Zones that are present at site	FIRM
Invasives	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Black Locust	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Norway Maple	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Sycamore Maple	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Autumn Olive	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Border Privet	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Scotch Broom	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Forsythia	YES seen / NO not present / --- not seen	PDRF / Mapwrks

Burning Bush	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Japanese Barberry	YES seen / NO not present / --- not seen	PDRF / Mapwrks

BASELINE INFORMATION continued

Data Base Field (2nd Header Line)	Content	Source (1st Header Line)
Multiflora Rose	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Shrub Honeysuckle	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Asiatic Bittersweet	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Porcelain Berry	YES seen / NO not present / --- not seen	PDRF / Mapwrks
English Ivy	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Japanese Knotweed	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Common Reed	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Purple Loosestrife	YES seen / NO not present / --- not seen	PDRF / Mapwrks
NUISANCE	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Poison Ivy	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Green Briar	YES seen / NO not present / --- not seen	PDRF / Mapwrks
OTHER VEG	Other plants of interest as noted	PDRF / Mapwrks
Trails	YES / NO	PDRF / Mapwrks
Horse Use	Observed Horse use (hoof prints/droppings)	PDRF / Mapwrks
Trail Notes	Condition/Potential, etc.	PDRF / Mapwrks
Signage	YES / NO	PDRF / Mapwrks
Sign Content	Information Type	PDRF / Mapwrks
Board Walk	YES / NO	PDRF / Mapwrks
Benches	YES / NO	PDRF / Mapwrks
Parking	YES / NO	PDRF / Mapwrks
Parking Type	Description	PDRF / Mapwrks
Trash Bins	YES / NO	PDRF / Mapwrks
MutMits	YES / NO	PDRF / Mapwrks
Fencing	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Fence Type	Description Notes	PDRF / Mapwrks
Bounds	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Test Wells	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Erosion	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Erosion Type	Description	PDRF / Mapwrks
Dumping	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Dumping Type	Description	PDRF / Mapwrks
Motor Use	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Motor Use Type	Description	PDRF / Mapwrks
Encroachment	YES seen / NO not present / --- not seen	PDRF / Mapwrks
Encroachment Type	Description	PDRF / Mapwrks
Easements	Information	Various Sources
Structures	Description / NO /--- not seen	PDRF / Mapwrks
Issues	Site Notes	MapWrks
Suggestions	Site Comments	MapWrks
ADA Condition	Description	PDRF / Mapwrks

ADA Parking	YES / NO	PDRF / Mapwrks
Notes	Other Comments	MapWrks

BASELINE INFORMATION continued

Data Base Field (2nd Header Line)	Content	Source (1st Header Line)
BOOK PAGE 1	Assessor Data Field	ADB
SALE DATE 1	Assessor Data Field	ADB
SALE CODE 1	Assessor Data Field	ADB
QUALIFIED 1	Assessor Data Field	ADB
IMPROVED 1	Assessor Data Field	ADB
SALE PRICE 1	Assessor Data Field	ADB
BOOK PAGE 2	Assessor Data Field	ADB
SALE DATE 2	Assessor Data Field	ADB
SALE CODE 2	Assessor Data Field	ADB
QUALIFIED 2	Assessor Data Field	ADB
IMPROVED 2	Assessor Data Field	ADB
SALE PRICE 2	Assessor Data Field	ADB
BOOK PAGE 3	Assessor Data Field	ADB
SALE DATE 3	Assessor Data Field	ADB
SALE CODE 3	Assessor Data Field	ADB
QUALIFIED 3	Assessor Data Field	ADB
IMPROVED 3	Assessor Data Field	ADB
SALE PRICE 3	Assessor Data Field	ADB
ASSESS CODE 1	Land Use Code	ADB
ASSES DESC 1	Assessor Data Field	ADB
ASSESS CODE LAND1	Assessor Data Field	ADB
ASSESS CODE BLDG 1	Assessor Data Field	ADB
CODE TOTAL ASSESS 1	Assessor Data Field	ADB
CODE TOTAL APPRAIS 1	Assessor Data Field	ADB
PARCEL TTL APPRAISED	Assessor Data Field	ADB
PARCEL TTL ASSESSED	Assessor Data Field	ADB
PARCEL BLDG APPRAISED	Assessor Data Field	ADB
PARCEL BLDG ASSESSED	Assessor Data Field	ADB
PARCEL LAND APPRAISED	Assessor Data Field	ADB
PARCEL LAND ASSESSED	Assessor Data Field	ADB
PARCEL OUT BLDG APPRA	Assessor Data Field	ADB
PARCEL OUT BLDG ASSESS	Assessor Data Field	ADB
PARCEL BUILDING COUNT	Assessor Data Field	ADB
PARCEL OUTBUILDING CT	Assessor Data Field	ADB

III
NHESP RARE AND ENDANGERED SPECIES

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) is an outgrowth of The Massachusetts Endangered Species Act (MESA). Core aspects of NHESP are Listed Species and their habitats. The Listed Species are identified and classified as Endangered, Threatened or of Special Concern through biological research and inventory. NHESP also defines special habitats as Priority Habitats of Rare Species, Estimated Habitats of Rare Wildlife and Vernal Pools. Management planning for any Chatham Conservation Parcel must respect environmentally sensitive areas as designated by NHESP. The Coastal Plain Ponds and Coastal Estuaries are particularly sensitive. The diverse Chatham ecosystem is home to a number of species that are considered to be "Endangered," "Threatened" or subject to "Special Concern" and many habitats that are defined as Priority, Estimated or as Vernal Pools by NHESP.

Endangered Species are those native species that are in danger of extinction either from Massachusetts or from throughout or part of their range. Threatened Species are those native species that are declining or rare, and are likely to become Endangered in the foreseeable future. Native Species of Special Concern have been documented to show a decline or exist is small numbers or in limited habitats, which give them the potential of becoming Threatened.

- Town-wide NHESP Listed Plant and Wildlife Species:

1 AMPHIBIAN of Special Concern

Hemidactylium scutatum	Four-Toed Salamander	Maple/Cedar Swamps

11 BIRDS

4 Endangered

Asio flammeus	Short-Eared Owl	Sandplain Grasslands
Botaurus lentiginosus	American Bittern	Marsh & Pond Shores
Podilymbus podiceps	Pied-Billed Grebe	Ponds & Wetlands
Sterna dougallii	Roseate Tern	Ponds & Coastal Beaches

2 Threatened

Charadrius melodus	Piping Plover	Sandy Beaches/Dunes
Circus cyaneus	Northern Harrier	Coastal Marshes

5 Special Concern

Gallinula chloropus	Common Moorhen	Ponds
Sterna antillarum	Least Tern	Coastal Beaches
Sterna hirundo	Common Tern	Ponds & Coastal Beaches
Sterna paradisaea	Arctic Tern	Coastal Beaches
Tyto alba	Barn Owl	Grasslands & Marshes

- Town-wide NHESP Listed Plant and Wildlife Species:

3 BUTTERFLY/MOTHS of Special Concern

Abagrotis nefascia	Coastal Heathland Cutworm	Dunes, Oak/Pine forest
Catocala herodias Gerhardi	Gerhard's Underwing Moth	Pine/Oak Barrens
Hemileuca maia	Barrens Buckmoth	Oak & Pine Barrens

4 DRAGONFLY/DAMSELFLY

2 Threatened

Enallagma pictum	Scarlet Bluet	Ponds
Enallagma recurvatum	Pine Barrens Bluet	Ponds

2 Special Concern

Anax longipes	Comet Darner	Ponds
Enallagma laterale	New England Bluet	Ponds

1 FISH of Special Concern

Notropis bifrenatus	Bridle Shiner	Ponds

1 REPTILE of Special Concern

Terrapene carolina	Eastern Box Turtle	Woodlands

11 PLANTS

2 Endangered

Mertensia maritima	Oysterleaf	Beach
Rhexia mariana	Maryland Meadow Beauty	Pond Shores

2 Threatened

Ophioglossum pusillum	Adder's-tongue Fern	Boggy Marsh borders
Persicaria setacea	Strigose Knotweed	Pond Shores

7 Special Concern

Helianthemum dumosum	Bushy Rockrose	Sandplain/Pine Barrens
Liatris scariosa novae-angliae	New England Blazing Star	Sandplain Grasslands
Polygonum glaucum	Sea-Beach Knotweed	Seashore
Polygonum puritanorum	Pondshore Knotweed	Pond Shores
Sabatia kennedyana	Plymouth Gentian	Pond Shores
Sagittaria teres	Terete Arrowhead	Pond Shores
Suaeda calceoliformis	American Sea-blite	Beach/Salt Marsh

- NHESP Priority Habitat of Rare Species (PHRS)

  Priority Habitat Areas (prihab- MassGIS data layer name)are those recorded by NHESP over the last 25 years, as habitats of State-Listed Rare Species. Priority Habitats are the "filing trigger" for determining if a proposed project must be reviewed by NHESP in relation to the Massachusetts Endangered Species Act (MESA)

  - Forty-one Conservation Parcels contain NHESP Priority Habitats

#4	Red River Valley
#6	Town Forest
#6A	Town Forest
#6B	Town Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#16A	Goose Pond Upper
#20	Goose Pond Bluff
#21	Ridgevale Beach Marsh
#21A	Ridgevale Beach Marsh
#31	George Ryder Forest
#38	Lovers Lake Bluff
#43	Ryders Cove
#43A	Ryders Cove
#43B	Ryders Cove
#66	Stage Island Parcel
#69	Strong Island Marsh
#89	Stage Harbor Point (2 parcels)
#90	Morris Island Dike
#90A	Morris Island Dike
#99 A-G	North Beach (7 parcels)
#103	McClure Parcel
#107	Old Comers Woodland
#107A	Old Comers Woodland
#107B	Old Comers Woodland
#108	Forest Beach & Marsh
#108A	Forest Beach & Marsh
#108A(B)	Forest Marsh Island
#124	Hill Parcel
#126	Capt. George N. Harding
#126A	Capt. George N. Harding
#129	Rolf E. Sylvan Gardens
#130	Seaquanset Parcel
#	Valley Farm Salt marsh

  - Four Conservation Areas had NHESP Priority Habitat Areas (phab) in 2003,
    but not 2006 and should continue to be treated accordingly

#14	Ministers Bog

#16	Goose Pond Upper
#29	Training Field Triangle
#107C	Old Comers Woodland

- NHESP Estimated Habitat of Rare Wildlife (EHRW)

Estimated Habitat Areas (esthab- MassGIS data layer name) are a subset of the Priority Habitats of Rare Species Areas, which have observed occurrences of Rare Wetland Wildlife recorded by NHESP over the last 25 years. Estimated Habitat areas are used in conjunction with the Massachusetts Wetlands Protection Act Regulations requiring that NHESP must be notified of any project Notice of Intent filed under the Wetlands of Protection Act.

- Thirty-seven Conservation Parcels contain NHESP Estimated Habitats

#4	Red River Valley
#6	Town Forest
#6A	Town Forest
#6B	Town Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#16A	Goose Pond Upper
#20	Goose Pond Bluff
#21	Ridgevale Beach Marsh
#21A	Ridgevale Beach Marsh
#31	George Ryder Forest
#43	Ryders Cove
#43A	Ryders Cove
#43B	Ryders Cove
#66	Stage Island Parcel
#69	Strong Island Marsh
#89	Stage Harbor Point (2 parcels)
#90	Morris Island Dike
#90A	Morris Island Dike
#99 A-G	North Beach (7 parcels)
#103	McClure Parcel
#108	Forest Beach & Marsh
#108A	Forest Beach & Marsh
#108A(B)	Forest Marsh Island
#124	Hill Parcel
#126	Capt. George N. Harding
#126A	Capt. George N. Harding
#129	Rolf E. Sylvan Gardens
#130	Seaquanset Parcel
#	Valley Farm Salt marsh

- One Conservation Area had NHESP Estimated Habitat of Rare Wildlife Areas (whab) in 2003, but not 2006 and should continue to be treated accordingly

#29	Training Field Triangle

- NHESP Vernal Pools

  - Certified Vernal Pools
    - Four Conservation Areas contain NHESP Certified Vernal Pools

    #16 Goose Pond Upper
    #22 Sam Ryder Road
    #29 Training Field Triangle

  - Potential Vernal Pools
    - Three Conservation Areas contain NHESP Potential Vernal Pools
    - Chatham should complete the Certification Process of these Potential Vernal Pools
    - AmeriCorps (if available), Schools or Scouts could provide volunteer monitoring

    #30 Training Field Well Site
    # McCoy Tree Farm

  - **Chatham Conservation Commission or volunteers should investigate additional possible Potential Vernal Pools for possible certification**

    #22 Sam Ryder Road
    #30 Training Field Well Site
    # McCoy Tree Farm

  - **Private Parcels with Certified or Potential Vernal Pools should be priorities for purchase and/or protection.**

IV
LAND MANAGEMENT ADMINISTRATIVE ACTIONS

The preliminary review of Chatham Conservation Land data has brought to light some Administrative Issues that should be addressed. Of primary importance is to clarify the departmental oversight of all Town Owned Parcels. There are apparent conflicts as some maps and databases indicate different oversight for a number of parcels. The Conservation Commission can not address management issues of parcels that it isn't sure it controls. This issue recently received public attention, when affordable housing was suggested for a parcel that is listed as Conservation on a Town Property Listing. Town Meeting Articles should be reviewed for each purchase, gift or taking to determine the purpose of the acquisition and into whose oversight it was placed. Town Meeting information is included in the Green Folders for many but not all sites. This record of information should be compiled for all other sites.

The Affordable Housing confusion mentioned above may have been compounded by the fact that The Town GIS Parcels incorrectly join adjacent parcels as one. In this case, Lower Goose Pond Conservation Land and the Town Disposal Area are mapped as a single parcel spanning Middle Road. The Conservation Commission, GIS Department and the Assessors Office should work to rectify this problem and any other that are discovered.

For parcel mapping and GIS analysis purposes, all parcels should have a unique ID. In the case of some Conservation Areas, there are two parcels with the same ID. This happens when a road splits an area such as #20 Muddy Creek Bluff, #30 Training Field Well Site and #90 Morris Island Dike. It also occurs in the marsh areas of #21 Ridgevale Beach and #108 Forest Beach where small separate marsh islands have the same ID as the main parcel. By applying a unique ID to each separate piece site data and acreage can be more easily and accurately tracked and mapped. #20 Muddy Creek is particularly critical, since its attachment to the large "Goose Pond Bluff" parcel means that the latter has not been tracked or recorded.

Other suggested actions involve combining adjacent/contiguous parcels so they can be treated as one for management purposes. It is understood that the historic records of individual parcels will be kept for archival information, but it is also understood that in most cases, past ownership is not relevant to existing management issues. These suggested actions will simplify management tasks and improve database analysis and GIS mapping.

Consideration could also be given to splitting some parcels that have two ecologically diverse areas. Examples would be parcels that have both upland and salt marsh. Such a split would simplify the different management practices, record keeping for each area and mapping with the Conservation Management Database.

It will be noted that some areas have been listed for consideration of both splitting and combining. The decision of whether it makes more sense to join small disconnected (by road or water) areas to larger areas for mapping and tracking purposes versus giving them separate IDs for mapping and tracking will be a decision for the Conservation Commission, Assessors and Town GIS Manager to work out together.

Administrative Actions could also involve reviewing Massachusetts Natural Heritage and Endangered Species Program designations as related to Town Conservation Land and adjacent areas. Changes indicated by the 2006 Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species maps,

which omit areas targeted in 2003 might warrant some discussion with the State. It is also curious why some environmentally unique areas such as the Cedar Swamp and Mill Pond are not included under one or both of these designations.

Property Oversight and Boundaries

- Clarify Conservation Commission Oversight of Properties in Assessors Database
  - Various Town Data Bases, "Chatham Town Property" Lists (CTPL) and Maps differ in property designation
  - Work with other Town Boards to clarify oversight of Town owned land
  - Review Town Meeting Articles on purchase, gift or taking for Conservation Oversight or purpose
  - Work with Assessors to clarify oversight in Assessors Data Base as OWNER 2

#15B & #17:
Confusion over Dump Extension parcels, North and South of Middle Road
Goose Pond Lower (proposed Housing - Conservation on CTPL
GIS maps this all as ONE parcel, Parcel 5F-T3
Need to be split Conservation Land from Landfill portion south of Middle Road per 2003 Comprehensive Plan Map of Town Owned Lands
Small separate Middle Rd triangle of 5R-T3 needs separate LRP (17A?)

#18 Middle Road-Dump Extension (Conservation on Maps, Municipal in CTPL
No Green Folder 6F-D1-D7 (Vision ID 6053) (2 parcels now combined?)

#21 Ridgevale Beach and Marsh (Recreation on CTPL, but Green ConCom Folder)
Parcel 6B-C2

#22 Sam Ryder North (Conservation or Recreation on different Maps, Recr. on CTPL
6F-1&1A (Town lists as Volunteer Park-Recreation 6F-2)

#22A Sam Ryder South (Volunteer Park on Bike Trail)
(Conservation or Recreation. different Maps, Recreation. on CTPL
6F-2 (Town lists as Conservation 6F1&1A)

#22B Indian Hill North (Conservation or Recreation on different Maps
ConCom on CTPL 8F21A-M1

NOTE: Info on CTPL and Green Folder notes appear to flip-flop parcels 22 & 22A. Info in Property Management Database needs to be checked for info match to proper parcel.

#25A Hardings Beach (Conservation on Maps, Recreation CTPL)
8A-2D

#25B Hardings Beach (Conservation on Maps, Recreation in CTPL)
8A-2A

#25C Hardings Beach (Conservation on Maps, Recreation in CTPL)
8A-2C

Property Oversight and Boundaries continued

#45 Water Tower Parcel (Conservation on Map, Municipal in CTPL)
12G-43-10

90 Morris Island Dike (Conservation on Maps, Landing in CTPL)
15A1-H145 (CTPL Confuse with Stage Harbor Dike 12A3-DIKE-1)
Stage Harbor Dike12A3-DIKE-1 has no LRP number; and is not tracked on lists
(Should this spit of dredge spoils from Hardings Beach channel be Conservation?)

#101 Ivy Lane-Black Pond Need to correct CTPL and Assessors Data Base from 16B-54B-25B to 16B-54-25
per deed; 6B-54B-25B is Chatham Conservation Foundation Land

#111 Stony Hill Drainage (Conservation on Map, Municipal in CTPL)
14G-4A

#121 Shane Drive Drainage (Conservation on Map, Municipal in CTPL)
14G-C7A

#122 CHOP Housing Common Area (Conservation on Map, Municipal in CTPL)
14G-CA-2B

#124 Hill Parcel (Conservation on Map & List, Town Manager in database)
9E-3-8-5

#126 Capt. Harding; update Assessors ownership to Town of Chatham ConCom
9E-3-9 & 9E-3B-9B

? Parcel 13G-4A (Conservation on Map, Not in CTPL)

? Parcel 14G-2A (Conservation on Map, Not in CTPL)

- Work with Assessors to update Assessors Database with new parcels purchases
  - # Cedar Street Property (formerly owned by Taylor)
  - # Valley Farm (formerly owned by Marquit) Off Barn Hill Road
  - # McCoy Tree Farm off Old Queen Ann Road

- Create new LRP Number for New Conservation Land
  - # Cedar Street Property (formerly Taylor)
  - # Valley Farm (formerly Marquit) Off Barn Hill Road

McCoy Tree Farm off Old Queen Anne Road

Property Oversight and Boundaries continued

- Update Assessors GIS Map and Database
  - Corrections and Additions to Assessors Maps

#15B	Goose Pond Lower	Remove Disposal Area south of Middle Road (LRP#17) Currently this acreage is tracked in GIS as one
#20(A)	Muddy Creek Bluff	Split from Goose Pond area South of Old Queen Anne Rd Currently this acreage is tracked in GIS as one
#20	Goose Pond Bluff	Split from Muddy Creek Bluff (per above) Combine with Goose Pond Upper or keep separate?
#51	Absegami Run	Assessors Area (.24 acres) is small. GIS: 3.3 acres 13E-60-H1
#89	Stage Harbor Point	Combine parcels under single GIS record Correct combined Assessors Acreage (Parcel Id #2115, is linked to two GIS parcel records)
#90	Morris Island Dike	Combine parcels under single GIS record including road, or split with two separate ID's (Parcel Id #2926, is linked to two GIS parcel records) Correct Map/Parcel number in CTPL to 15A1-H145 CTPL confuse this with Stage Harbor Dike south of Morris Island (Parcel ID #8277, Parcel 12A3-DIKE-1)
#99	North Beach	Add Parcels to Digital Assessors Map for GIS
#101	Ivy Lane-Black Pond	Correct Parcel from 16B-54B-25B to 16B-54-25 per deed Vision ID is 3661 not 8226 Correct Assessors Ownership of 16B-54-25 from Chatham Conservation Foundation to Town of Chatham Correct Assessors Ownership of 16B-54B-25B from Town of Chatham to Chatham Conservation Foundation
#108A	Forest Beach Marsh	Combine parcels under single GIS record or 4B-4-4 (Parcel ID#4974) is linked to 2 GIS Parcel Records
#123	Skunks Neck	Split parcel between CCF area and Conservation area
#	McCoy Tree Farm	Split Residential Parcel from Conservation Parcel

Property Oversight and Boundaries continued

- Consider Grouping Contiguous Adjacent Sites Under One Name and ID Where Appropriate
  - Simplify Record Keeping
  - Simplify Mapping and Analysis

#6A	Town Forest North	2 parcels
#7A	Mill Pond Farm (Mill Farm Lane)	4 parcels
#15	Goose Pond Lower	5 parcels
#16	Goose Pond Upper	4-5 parcels
	(Include "Goose Pond Bluff" split from Muddy Creek?)	
#22A	Sam Ryder North and #22B Indian Hill North	2 parcels
#43A	Ryders Cove East	2 parcels
#100	Mill Hill Bog	2 parcels
#107	Old Comers Woodland	8 parcels
#108	Forest Beach Marsh (MCI South Chatham)	3 parcels
#126	Captain George N. Harding (Hennigan parcels)	2 Parcels
#128	Onembo Parcels	2 parcels

- Create Simplified Conservation Naming Conventions

(Consistently use "Parcel" instead of "Property" or "Land")

#4	Red River Valley (Red River Property)
#6D	Morton Road Triangle (Morton Road Tiny Parcel (Town Forest))
#7	Mill Pond Forest (NWC Mill Pond)
#7A	Mill Pond Farm (Mill Farm Lane)
#13	Middle Road Parcel (Middle Road Land)
#21A	Ridgevale Marsh Island (Split from Ridgevale Beach Marsh)
#22	Sam Ryder North (North of Volunteer Park)
#22A	Sam Ryder South (Sam Ryder Road)
#30A	Linda Lane Parcel (split from #30 Training Field Well Site)
#43	Ryders Cove West (Ryders Cove from CCF)
#43A	Ryders Cove East (Ryders Cove Trask and Ryders Cove Small RCA
#51	Absegami Run (Absegami Run Parcel)
#67	Hamden Place (Orleans Road – Hamden Place)
#100	Mill Hill Bog (Mill Hill Road Parcels)
#103	McClure Parcel (McClure Property)
#105	Pleasant Corner (Pleasant St./Deep Hole Property)
#107	Old Comers Woodland (MCI Chathamport)
#108	Forest Beach Marsh (MCI South Chatham)
#114	Fitchett Parcel (Andrew Hardings Fitchett)
#123	Skunks Neck Parcel (Wells/Kasper Parcel)
#129	Rolf E. Sylvan Gardens (Per Quit Claim Deed) (Abreu / Sylvan Parcel)
#130	Seaquanset Parcel (Greenward/Guardo)
#	Cedar Street Parcel (new purchase)
#	Valley Farm (new purchase)
#	McCoy Tree Farm (new purchase) (South Chatham Tree Farm)

Property Oversight and Boundaries continued

- Consider Splitting Environmentally Diverse Parcels into 2 pieces for Management
  - Create new Vision ID, AltID & LRP letter for split parcel
  - Separate uplands from wetlands for GIS mapping purposes
  - Separate uplands from wetlands for record keeping purposes

#130	Seaquanset;:	Split Upland edge from Salt Marsh
#108	Forest Beach Marsh:	Split Salt Marsh and Upland
#	Valley Farm Marsh:	When LRP Number is applied, keep Marsh separate (Or with letter designation; #-A)

  - Split Recreation facilities from woodlands for Oversight/Management

#22	Sam Ryder South	Split Ball Fields from Conservation Land

  - Separate Recreation Beach from wetlands for Oversight/Management

#21	Ridgevale Marsh Beach	Split Marsh and Marsh Is. from Recreation Beach
#25	Hardings Beach:	Place Salt Marsh in Conservation
#108	Forest Beach Marsh:	Split Recreation Department Beach from Conservation Commission Marsh

#108 Forest Beach Marsh from upland, F. McClennen

Property Oversight and Boundaries continued

- Consider Splitting Non-Contiguous Parcels for Easier Tracking and Mapping

  - Create new Vision ID, AltID & LRP letter for split parcel

#15B	Lower Goose Pond	Split off Disposal Area south of Middle Road (#15B Lower Goose Pond and #17 Disposal Area) Slit Small Triangle parcel East of Middle Road
#20	Muddy Creek	Split off Large parcel South of Old Queen Anne Rd (#20 “Goose Pond Bluff”) (#21A Muddy Creek Bluff)
#21	Ridgevale Marsh Island	Split Marsh Island from Beach Marsh (#21A Ridgevale Marsh Island #21A)
#30	Training Field Well	Split off Small parcel north of Cedar Farm Road: (#30A Linda Lane Parcel)
#67	Hamden Place	Split 2 parcels; (Hamden East #77 and Hamden West #67A)
#90	Morris Island Dike	Split two parcels (#90 Morris Is Dike East and #90A Morris Is. Dike West)
#108	Forest Beach Marsh	Split off small marsh Island (#108B Forest Beach Marsh Island)

Property Oversight and Boundaries continued

- Clarify Conservation Property Boundary Lines
  - Seek funding to survey Conservation Land Property Bounds
  - Prioritize surveys by encroachment and/or dumping problems

High Priority Surveys

- Residential areas, where encroachment and yard dumping is an issue

#6	Town Forest (east side)
#7	Mill Pond Forest
#13	Middle Road Parcel
#15	Goose Pond Lower
#16	Goose Pond Upper
#22	Sam Ryder North, South and Indian Hill North
#28	Indian Hill Well Site
#30	Training Field Well Site (north side)
#31	George Ryder Forest (west side)
#67	Hamden Place
#100	Mill Hill Bog
#128	Onembo
#	Valley Farm (Marquit)

#6 Town Forest Boundary dumping, F. McClennen

Property Oversight and Boundaries continued

Medium Priority Surveys

- Where boundary location needs to be clarified for management
  - #43 Ryder's Cove
  - #99 North Beach (to determine areas above high water)
  - #114 Fitchett Parcel (to determine if above high water)

- Where formal access needs to be established
  - #129 Rolf E. Sylvan Gardens

- Parcels where encroachment may become an issue
  - #1 Red River Swamp
  - #4 Red River Valley
  - #6 Town Forest Triangle
  - #14 Ministers Bog
  - #20A Muddy Creek Bluff and #20 Goose Pond Bluff
  - #38 Lovers Lake Bluff
  - #53 Cedar Swamp
  - #66 Stage Island Parcel
  - #89 Stage Harbor Point
  - #90 Morris Island Dike
  - #102 Kolb (west side)
  - #103 McClure
  - #105 Pleasant Corner
  - #107 Old Comers Woodland
  - #108 Forest Beach Upland
  - #123 Skunks Neck
  - #124 Hill Parcel
  - #126 Captain George N Harding Conservation Area
  - #130 Seaquanset

Low Priority Surveys

- Low use sites
  - #21 Ridgevale Marsh
  - #51 Absegami Run
  - #101 Ivy Lane Black Pond
  - #104 Honeysuckle Lane
  - #108 Forest Beach Marsh
  - #110 Sybil Drive

- Surveys Unnecessary - self defined sites
  - #69 Strong Island Marsh
  - #29 Training Field Triangle

Conservation Restrictions and Easements

Place Conservation Restrictions on Conservation Commission Land

- Place Conservation Restrictions over Town Conservation Land to secure more permanent preservation of existing Conservation Land.

- Work with the Chatham Conservation Foundation to place Conservation Restrictions over Conservation parcels as a method of more permanent protection of larger parcels and keep a focus on smaller parcels that could be subject to encroachment.

- Work with the Chatham Conservation Foundation to place Conservation Restrictions over all new Town of Chatham Conservation acquisitions (purchases or donations) for more permanent protection.

- CR's should be written to allow for the maintenance and/or creation of trails and for the clearing of invasive species.

High Priority CRs

- Large upland parcels
  - Large parcels should be protected

#6	Town Forest (east side)
#7	Mill Pond Forest
#15	Goose Pond Lower (adjacent to CCF Land)
#16	Goose Pond Upper
#20	Goose Pond Bluff
#22	Sam Ryder Upper and Indian Hill North
#29	Training Field Triangle (adjacent to CCF Land)
#31	George Ryder Forest (adjacent to CCF Land)
#38	Lovers Lake Bluff
#67	Hamden Place (adjacent to CCF Land)
#102	Kolb (adjacent to CCF Land)
#107	Old Comers Woodland
#108	Forest Beach Upland

- Mixed Wetland and Upland parcels
  - The upland portions of these smaller parcels should have added protection

#4	Red River Valley
#51	Absegami Run
#53	Cedar Swamp (adjacent to CCF Land)
#100	Mill Hill Bog
#130	Seaquanset

Conservation Restrictions and Easements continued

Medium Priority CRs

- **Smaller Upland parcels**
  - Small isolated parcels tend to be a low priority for Conservation Commission management and are subject to encroachment. They would benefit from annual CR inspections.

#6	Town Forest Triangle
#13	Middle Road Parcel
#20A	Muddy Creek Bluff
#103	McClure
#105	Pleasant Corner
#110	Sybil Drive
#123	Skunks Neck (adjacent to CCF Land)
#124	Hill Parcel
#126	Captain George N Harding Conservation Area

Low Priority CRs

- Town Well Sites have added Water Department protection

#6	Town Forest Well Sites
#28	Indian Hill Well Site
#30	Training Field Well Site (adjacent to CCF Land)

- Wetlands and Coastal Dune/Bluff areas have existing environmental protection

#1	Red River Swamp
#21	Ridgevale Marsh
#43	Ryder's Cove
#66	Stage Island Parcel
#69	Strong Island Marsh (adjacent to CCF Land)
#89	Stage Harbor Point
#90	Morris Island Dike
#99	North Beach
#104	Honeysuckle Lane (adjacent to CCF Land)
#108	Forest Beach Marsh
#114	Fitchett Parcel

Conservation Restrictions and Easements continued

• Parcels already covered by a Conservation Easement / Deed Restriction

(Information should be clarified)

#14	Ministers Bog – Chatham Conservation Foundation
#101	Ivy Lane Black Pond – Chatham Conservation Foundation
#123	Skunks Neck – Chatham Conservation Foundation
#128	Onembo – Chatham Conservation Foundation
#129	Rolf E. Sylvan Gardens – Chatham Conservation Foundation
#	Valley Farm (Marquit) – Chatham Conservation Foundation
#	Taylor Property off Cedar Street
#	McCoy Tree Farm

Conservation Restrictions and Easements continued

- Complete search of all Deeds to clarify all Restrictions and Easements on Conservation Land
  - Conservation Land Management Database includes a partial listing of Restrictions

- Complete search for Town Meeting Records
  - Include copies in Master Green Folder document files

#1	Red River Swamp
#7	Mill Pond Forest (NWC Mill Pond)
#7A	Mill Pond Farm (Mill Farm Lane)
#13	Middle Road Parcel
#15	Goose Pond Lower
#20A	Muddy Creek Bluff
#20	Goose Pond Bluff
#29	Training Field Triangle
#38	Lovers Lake Bluff
#43	Ryders Cove
#51	Absegami Run
#66	Stage Island Parcel
#89	Stage Harbor point
#90	Morris Island Dike
#104	Honeysuckle Lane
#105	Pleasant Corner
#110	Sybil Drive
#114	Fitchett Parcel

- Confer with Massachusetts Natural Heritage and Endangered Species Program on Estimated and Priority Habitat Area Questions

  - Confer with NHESP on sites that are omitted as Estimated or Priority Habitat Areas

#7	Mill Pond Forest shoreline
#53	Cedar Swamp
#100	Mill Hill Bog

  - Clarify Changes in NHESP Natural Heritage Areas
    - Why have areas been dropped as Priority Habitats of Rare Species?

#14	Ministers Bog
#16	Goose Pond Upper
#29	Training Field Triangle Wetlands
#107C	Old Comers Woodland

  - Why was area dropped as Estimated Habitat of Rare Wildlife?

#29	Training Field Triangle Wetlands

Conservation Commission Rules and Regulations

- Periodically review and update if necessary, "Rules Governing the Use of Land under Conservation Commission Control"
  - Consider need to clarify safety issues related to hunting
    - Prohibited within 500 feet of dwelling
    - Hunters be aware of hikers
    - Hikers beware of hunters
  - Consider need to prohibit smoking for fire prevention

#29 Training Field Triangle Entrance Sign, F. McClennen

V
LAND MANAGEMENT ENHANCEMENT ACTIONS

Sites have been reviewed for Public and ADA (Americans with Disabilities Act) access as related to Parking and Trails. Sites have been reviewed in terms of environmental sensitivity, as related to NHESP Habitats, and degradation as related to invasive species, natural and human induced erosion, as well as dumping and encroachment issues. These have all been addressed and recommendations made for possible controls, corrections or enhancements. Enhancements are suggested to improve public respect for and enjoyment of Conservation Lands. Some enhancements are discouraged for environmental reasons.

PUBLIC ACCESS ENHANCEMENTS

Provide public access improvements where appropriate, or public access controls where necessary for environmental protection:

- Parking
- No Parking
- ADA Access
- Trails
- Signage
- Information and Map Kiosks
- Gates
- Benches
- Mutt Mitts
- Enhancements Not Encouraged

PARKING:
- Secluded off-street parking can create problems
- On-street parking can be dangerous on busy roads
- Some sites with delicate ecosystems or no trails, may be best environmentally served with no parking area provided

Recommendations:
- Parking lots should be kept small (or in proportion to parcel size) to discourage overuse
- Parking lots are best situated within open sight of public ways
    - Discourage loitering, dumping and other inappropriate activities
    - Allow for easier police and public monitoring

- Provide Small pull-in lots or widen road shoulder for safer parking

Provide for safer loading and off-loading of passengers

#20	Muddy Creek Bluff	
#31	George Ryder Forest	(close off dirt road to inner parking)
#53	Cedar Swamp	(close off dirt road to inner parking)
#100	Mill Hill Bog	(if public access is appropriate)
#107	Old Comers Woodland	
#	McCoy Tree Farm Property; Provide parking access to proposed trail	
#	Valley Farm (Marquit)	

Public Access Enhancements continued

- Provide centralized pull-in lots for large conservation areas
  Create formalized and welcoming "Entrance"

#6	Town Forest Area
#7	Mill Pond Forest
#15	Goose Pond Lower

- Assess existing internal parking for environmental conditions and handicap access

#16 Goose Pond Upper Fishermen's landing
- Control parking on beach
- Address erosion and run-off issues
- Assess for possible handicap parking

#16 Goose Pond Upper Fisherman's Landing, F. McClennen

Public Access Enhancements continued

NO PARKING PROVIDED: In some cases parking is not needed or should not be provided.

- Parking is unnecessary with adjacent parking lot available

#1	Red River Valley Parcel (parking available at Cemetery)
#21	Ridgevale Marsh (parking available at Ridgevale Beach)
#22	Sam Ryder Upper & Indian Hill North (parking available at ball field)
#128	Onembo Parcel (parking available at Rail Trail)

- Parking is unnecessary for neighborhood/pedestrian use of small parcels

#6D	Morton Road Forest Triangle
#13	Middle Road Parcel
#32	Hill Parcel
#51	Absegami Run
#101	Ivy Lane Black Pond
#103	McClure
#105	Pleasant Corner
#110	Sybil Drive
#123	Skunks Neck
#124	Hill Parcel
#126	Capt. George N. Harding
#130	Seaquanset (upland)
#	Taylor Property

- Parking is unnecessary with parking available on quiet side street

#67	Hamden (park on Hamden Place)
#102	Kolb (park on Sewage Treatment Access road)

- Parking is unnecessary for overgrown or inaccessible parcels

#1	Red River Swamp
#51	Absegami Run
#103	Ivy Lane-Black Pond
#110	Sybil Drive

- Discourage access to sensitive areas

#14	Ministers Bog (overlook only)
#43	Ryders Cove (overlook only)
#66	Stage Island Parcel
#114	Fitchett Parcel
#130	Seaquanset (salt marsh)

Public Access Enhancements continued

- ADA ACCESS:

The American with Disabilities act of 1991 provides federal guidelines for providing access to public facilities and lands by handicapped individuals, but it acknowledges that total accessibility is not a possible goal. Due to the uneven terrain of most Chatham Conservation Land, ADA access is inherently problematic.

Benches could provide resting spots for those who are ambulatory, but true ADA access will require paved parking and pathways. Cost and environmental constraints are likely limits to providing access to the few relatively flat conservation areas.

Overlook Platforms could allow the less ambulatory to enjoy a variety of scenic vistas. Construction of benches and platforms could coordinated with Public Service Programs such as Boy Scout or AmeriCorps, if available.

Existing and Potential Handicap Parking:

#21 Ridgevale Beach and Marsh
- Handicap Parking Spaces available

#22 Sam Ryder Road
- Handicap parking is available at ball field
- Consider handicap loop trail around ball fields

#16 Goose Pond Upper
- Assess Fishermen's landing for handicap parking
- Need to address run-off and erosion issues.

#108 Forest Beach Upland
- Handicap Parking Space available at upland overlook

#108 Forest Beach Marsh
- Two Handicap Parking Spaces available at beach Parking Area

#129 Rolf E. Sylvan Gardens
- Proposed parking area off Old Main Street should include handicap parking
- Consider Handicap loop trail through garden area

Valley Farm (Marquit)
- Outer Pathway Loop (Valley Farm Drive) is relatively flat
- Environmental and access issues are limiting factors

Public Access Enhancements continued

Overlook Recommendations:

Some Conservation sights could provide opportunity for car and possible bench overlooks that could be enjoyed by those unable to walk trails.

#14	Ministers Bog
	• Consider expansion of road pull-off on Route 137
	• Clearing of invasives should open up view to wetland
#21	Ridgevale Beach and Marsh
	• Consider handicap beach or marsh viewing platform
#43	Ryders Cove
	• Consider expansion of road pull-off on Route 28
	• Clearing of invasives should open up view to cove
#90	Morris Island Dike
	• Consider providing designated handicap pull off
	• Consider handicap viewing platform
#108	Forest Beach Marsh
	• Consider handicap beach or marsh viewing platform

#108 Forest Beach Marsh, F. McClennen

Public Access Enhancements continued

TRAILS:

Existing active formal trails and informal trails, cart paths, fire roads and marked trails have been mapped with GPS coordinates and converted to shape files in NAD83 Massachusetts State Plane Coordinates (feet). Some narrow cross trails, dirt bike shortcuts or animal trails have also been mapped where useful. Suggestions of new/additional trails have been noted, but not mapped. This new data layer will be a useful inventory for the Conservation Commission and the raw GPS data can serve as a basis for any future trail mapping for trail guides and information kiosks.

While large parcels with uplands and/or vistas are typically most suitable for trails, small parcels have been reviewed in the context of their surroundings. Sites contiguous to other Conservation Commission parcels, or land protected by other entities such as the Chatham Conservation Foundation, may be judged to be suitable either as a protected wildlife corridor or for a connective trail network. Consideration has been given to small isolated parcels, which may be suitable for either neighborhood passive recreation use or as undisturbed wildlife habitat.

- Create New Trails:
  - Consider creating trail loops for more interesting walks
    - #6 Town Forest Well Site
    - #7 Mill Pond Forest
    - #16 Goose Pond Bluff open woodlands with pond overlooks
    - #107 Old Comers Woodland (MCI) Use overgrown service roads
    - # McCoy Tree Farm Create link between road and existing trails (per 2005 McCoy Property Management Plan)
  - Create new loop trails only if environmentally suitable
    - #29 Training Field Triangle (consider cross trail)
    - #31 George Ryder Forest (consider bridge link between ponds to CCF land)
    - #89 Stage Harbor Point
  - Create linkage to adjacent town or non-profit protected parcels
    - #30 Training Field Well Site: link Training field Triangle to CCF Lovers Lake
    - # Taylor Property: link existing trails to CCF land
  - Create short trail to scenic/wildlife overlook
    - #14 Ministers Bog (bog wetland)
    - #38 Lovers Lake Bluff (pond)
    - #100 Mill Hill Bog (bog wetland)
    - #124 Hill Parcel (pond)
    - # Valley Farm (salt marsh)

Public Access Enhancements continued

• Consider closing off some Trails where multiple paths may cause erosion

#16	Goose Pond Bluff
#90	Morris Island Dike
#99	North Beach (if not under water in new cut)
#108	Forest Beach
#21	Ridgevale Beach

Other Enhancements

Site enhancements can improve both public access and enjoyment of Chatham Conservation Land. While decisions for enhancements will be made on a site by-site basis, it is suggested that a more cost effected approach will be to provide specific enhancements for groups of sites at a time. For instance the Conservation Commission could seek funding for the addition of gates (or signs, benches or kiosks, etc.) to multiple sites at one time. This should be more cost effective than ordering one gate (or sign, bench or kiosk, etc.) at a time. This approach also allows for one type of enhancement to be installed before decisions are made on all other possible enhancements for a particular site.

- Ownership Signage
  - Consistent signage will provide more of a public presence for Chatham Conservation Land (some Private Land Trusts seem to be better at this)
  - Possible signage could range from simple tree tags to larger and more elaborate signs.
  - Signs at actively used sites should include Conservation Commission Rules and Regulations

Entrance Signage at #16/20 Goose Pond and #29 Training Field triangle, F. McClennen

- Rules and Regulations Signage
  - Provide use clarification at current (or potential) actively used sites where infractions are, or may become, common
  - Include hunting warning information for both hunters and hikers

#6	Town Forest
#7	Mill Pond Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#22	Sam Ryder Upper & Indian Hill North
#29	Training Field Triangle
#31	George Ryder Forest
#107	Old Comers Woodland (MCI)
#129	Rolf E. Sylvan Gardens
#	McCoy Tree Farm

#	Valley Farm (Marquit)

Other Enhancements continued

- Information Kiosks

  - Provide an "official presence" and a sense that a site is important
  - Kiosks provide a sense that a site is cared for and maintained
  - Kiosks text should include Conservation Commission Rules and Regulations
  - Kiosks text should include hunting information where applicable

- Work with Historic Commission to Provide Historic Information where appropriate

#29	Training Field Triangle Smallpox Cemetery
#107	Old Comers Woodland (MCI)
#108	Forest Beach Upland
#129	Rolf E. Sylvan Gardens
#	McCoy Tree Farm

- Provide Trail Maps at larger sites

#6	Town Forest
#7	Mill Pond Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#31	George Ryder Forest (coordinate with CCF to include adjacent Land)
#107	Old Comers Woodland (MCI)
#129	Rolf E. Sylvan Gardens
#	McCoy Tree Farm

History Kiosk at #126 Capt. George N Harding Conservation Area, F. McClennen

Other Enhancements continued

- Gates
  - Help prevent inner access for inappropriate activities
    - #6 Town Forest North
    - #15 Goose Pond Lower
    - #31 George Ryder Forest
    - #53 Cedar Swamp
    - #107 Old Comers Woodland (MCI)
    - # Valley Farm (Marquit)
- Benches
  - Provide scenic overlook destinations especially at pond/wetland bluffs
    - #4 Red River Valley
    - #7 Mill Pond Forest
    - #15 Goose Pond Lower
    - #16 Goose Pond Upper Bluff
    - #31 George Ryder Forest
    - #38 Lover Lake
    - #53 Cedar Swamp
    - #100 Mill Hill Bog
    - #107 Old Comers Woodland (MCI)
    - #108 Forest Beach Marsh
    - #129 Rolf E. Sylvan Gardens
    - #130 Seaquanset (after invasives are cleared)
    - # McCoy Tree Farm
    - # Valley Farm (Marquit)
  - Provide neighborhood focus and/or pedestrian resting site
    - #102 Kolb Parcel
    - #103 McClure Parcel(after invasives are cleared)
    - #105 Pleasant Corner
    - #124 Hill Parcel (after invasives are cleared)
    - #128 Onembo Parcel

Other Enhancements continued

- Mutt Mitts
  - Provide a reminder that pet owners have responsibilities.
  - Provide at all sites with trails

#6	Town Forest (east side)
#7	Mill Pond Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#22	Sam Ryder Upper and Indian Hill North
#29	Training Field Triangle
#31	George Ryder Forest (adjacent to CCF Land)
#107	Old Comers Woodland
#108	Forest Beach Upland
#129	Rolf E. Sylvan Gardens
#	McCoy Tree Farm off Old Queen Anne Road

Site Enhancements NOT Encouraged

Consideration of any enhancement should be made relative to the designated use of Public Conservation Land for passive recreation such as walking and nature study. Attention must also be given to sensitive NHESP Endangered Species and Wildlife Habitats.

- New Pond Beach Development is NOT Recommended

  - Coastal Plain Ponds are environmentally sensitive areas
  - Vegetated pond buffers provide water quality and wildlife habitat protection
  - The Massachusetts NHESP program designates most pond frontages and adjacent areas as Priority Habitats of Rare Species including:

6 BIRDS

4 Endangered

Botaurus lentiginosus	American Bittern	Pond Shores
Botaurus lentiginosus	American Bittern	Marsh & Pond Shores
Podilymbus podiceps	Pied-Billed Grebe	Ponds & Wetlands
Sterna dougallii	Roseate Tern	Ponds & Coastal Beaches

2 Special Concern

Gallinula chloropus	Common Moorhen	Ponds
Sterna hirundo	Common Tern	Ponds & Coastal Beaches

1 AMPHIBIAN of Special Concern

Hemidactylium scutatum	Four-Toed Salamander	Maple/Cedar Swamps

4 DRAGONFLY/DAMSELFLY

2 Threatened

Enallagma pictum	Scarlet Bluet	Ponds
Enallagma recurvatum	Pine Barrens Bluet	Ponds

2 Special Concern

Anax longipes	Comet Darner	Ponds
Enallagma laterale	New England Bluet	Ponds

1 FISH of Special Concern

Notropis bifrenatus	Bridle Shiner	Ponds

1 REPTILE of Special Concern

Terrapene carolina	Eastern Box Turtle	Woodlands

6 PLANTS

1 Endangered

Rhexia mariana	Maryland Meadow Beauty	Pond Shores

Site Enhancements NOT Encouraged continued

Pond Edge Priority Habitats of Rare Species continued

2 Threatened

Ophioglossum pusillum	Adder's-tongue Fern	Boggy Marsh borders
Persicaria setacea	Strigose Knotweed	Pond Shores

3 Special Concern

Polygonum puritanorum	Pondshore Knotweed	Pond Shores
Sabatia kennedyana	Plymouth Gentian	Pond Shores
Sagittaria teres	Terete Arrowhead	Pond Shores

- Do Not Clear scrub/shrub growth on pond edges for new swimming beaches
  - Protect sensitive habitat
  - Prevent pond bluff erosion
  - Discourage swimming in remote locations (safety issue)
  - Protect natural environment of pond frontages, with new enhancement limited to possible overlook benches

#6	Town Forest-3 Ponds	(Archies, South, Duane & unnamed)
#7	Mill Pond Forest	(Mill Pond)
#15	Goose Pond Lower	(Goose Pond)
#16	Goose Pond Upper Bluff	(Goose Pond)
#31	George Ryder Forest	Barclay and Mary's Ponds)
#38	Lovers Lake Bluff	(Lovers Lake)
#107	Old Comers Woodland	(Lovers Lake)
#124	Hill Parcel	(Black Pond)
#126	Capt. George N. Harding	(Bearses Pond)
#129	Rolf E. Sylvan Gardens	(Black and White Ponds)

- **Carefully address Public water access to Massachusetts Great Ponds.**
  - Protect sensitive habitat
  - Boat access should be limited to hand carried kayaks or canoes.
  - A narrow launch slot could be considered for those who want to carry boats overland from roadside parking areas.

#7	Mill Pond Forest	(Mill Pond)
#107	Old Comers Woodland	(Lovers Lake)
#	McCoy Tree Farm	(Mill Pond)

- Trash Cans are NOT Recommended
  - Trash Cans tend to invite household trash and animals.
  - "Take only pictures and leave only footprints" is a better message
  - If trash cans are found to be necessary; establish a regular pick-up schedule consistent with their usage.

VII
ENVIRONMENTAL DEGRADATION MANAGEMENT ISSUES & ACTIONS

Invasive Species

Invasive Plant Species are found to varying degrees on almost all Conservation Land. The prioritization of sites for treatment is influenced by a variety of site characteristics, so the degree of infestation does not directly reflect ranking order. As an example, #29 Training Field Triangle shows the beginning of infestation in one corner, and it is important that this key property is not allowed to get totally overgrown. Other areas, show a much higher degree of infestation, but rank lower because of their size, location and or surroundings. #110 Sybil Drive is a small overgrown subdivision parcel that is contiguous to a large area of infestation (not town owned), which would likely grow back in if the Conservation parcel were cleaned up. Other small overgrown parcels with a more public presence on Route 28 would warrant attention first.

Nuisance Species, such as Poison Ivy and Green Briar, can be "invasive" but are native and thus are not the same threat as foreign invasives. They are a problem only when they encroach on the trails, making passage difficult. Regularly used trails can keep these at bay, while smaller unused trails may get overgrown and require periodic maintenance clearing

Recommendations:

- Set up an ongoing plan to clear and control Invasive Plants
- See Priority Action Site Section for specific Site information and Priorities
- See Appendices for sample Site Plans

#29	Training Field Triangle
#43	Ryders Cove
#107	Old Comers Woodland
#129	Rolf E. Sylvan Gardens

#43 Ryders Cove Invasives, F. McClennen

Erosion

The sandy soil of Chatham is easily eroded if the topsoil is worn away. Erosion is most common on dune areas and where woodland trails are heavily worn on steep slopes. Mountain bikes, motor bikes and other all-terrain vehicles cause severe damage to trail areas. Eroded trails are also susceptible to rain washouts, which furthers the erosion process.

Recommendations:

- As indicated as an Enhancement Action, dune paths should be restricted to designated routes though the use of signage and/or fencing
  - #21 Ridgevale Beach
  - #90 Morris Island Dike
  - #99 North Beach
  - #108 Forest Beach

- Redirect foot traffic to control pond bluff bank erosion though the use of signage and/or fencing
  - #20 Goose Pond Upper Bluff

- The Prohibition of Dirt Bikes should be enforced though the use of signage and/or fencing.
  - #6 Town Forest
  - #7 Mill Pond Forest
  - #15 Goose Pond Lower
  - #16 Goose Pond Upper

- Consideration could be given to a designated biking area(s)
  - #6 Town Forest Power Line area

#20 Goose Pond Bluff Erosion, F. McClennen

Dumping

Dumping appears to be of two types; casual abutter encroachment and blatant off-loading of waste materials, old furniture and appliances. Pet Waste is also of concern.

Recommendations:

- As indicated as an Administrative Priority Action, property lines need to be clearly marked in residential areas and abutters educated, to avoid yard waste dumping on Conservation Land
- As indicated as an Enhancement Action establish visible parking areas
- Where possible, all parking areas should be limited to small lots visible from public roadways.
- As indicated as an Enhancement Action, install Rules and Regulations Signage
- Clarify Conservation Commission Rules and Regulations
- As indicated as an Enhancement Action, install gates as needed
- Where possible, all woods roads should be gated except for emergency vehicles
- Gates prevent "Commercial scale" dumping on access roads out of public view
- As indicated as an Enhancement Action, install Mutt Mitt Dispensers at Trail heads
- Encourage Pet Owners to be responsible for Pet Waste

#15 Goose Pond Lower dumping, F. McClennen

VII
PRIORITY MANAGEMENT ACTION SITES

The review of Chatham Conservation Lands has resulted in categorization of areas into different types and a ranking of High, Medium and Low Priority for actions. The actions are of two types; Enhancement Actions relating to the use of sites and Vegetation Actions related to invasive species cleanup. Vegetation Actions tend to carry a higher priority since time is of the essence to control invasives and make sites accessible for suitable activities. Detailed Invasive Species Management Plans for 4 High Priority sites are detailed in the Appendix.

High Priority Management Action Sites

These high priority sites were selected as examples of where there is great potential for both sight visibility and environmental improvements with public appreciation of money well spent.

- Sites with High Improvement Potential

The first two High Priority sites were selected as examples of Chatham's hidden jewels. They are sights that can provide for new public enjoyment and thus an appreciation of Chatham Conservation Land.

#129 Rolf E. Sylvan Gardens

- Seek funding for public parking off (and within view) of Old Main Street
- Seek funding for plant inventory and mapping
- Seek funding for arborist or plant historian to advise on overgrown ornamental plantings
- Prepare plan to address heavy invasive infestations (See Appendix 4)
- Seek funding for Trail Map and History Kiosk
- Seek funding or volunteer to establish pond bluff overlooks with benches
- Add Conservation Restriction for permanent protection

#107 "Old Comers Woodland" MCI Parcels

- Seek funding or volunteers to clear overgrown maintenance roads to trail width
- Seek funding or volunteers to create interesting path network
- Prepare plan to address invasive infestations (See Appendix 3)
  - Bittersweet
  - Porcelain Berry
- Seek funding or volunteer to establish Lovers Lake overlook with bench
- Seek funding to create small parking area
- Seek funding for Trail Map and History Kiosk
- Work with Highway Dept. to remove, and hopefully recycle, dump of old poles & cables
- Add Conservation Restriction for permanent protection

- Actively Used Sites with Early Stage Invasive Plants

These three sites are already known and actively enjoyed by the public. Attention should be given to early stage invasives, to avoid further environmental degradation.

High Priority Management Action Sites continued

#29 Training Field Triangle

- An actively used site that is part of the Cape Cod Pathways Trail system
- Prepare plan to address early invasive infestations and nuisance plant (See Appendix 1)
- Seek funding or volunteers to control early stage invasives
  - Bittersweet
  - Japanese Knotweed
  - Porcelain Berry
- Seek funding or volunteers to control nuisance Poison Ivy and Green Briar encroachment into paths
- Seek finding for Trail Map and History Kiosk
- Investigate possible Handicap Access to Small Pox Cemetery area
- Investigate potential cross trail(s) while respecting Vernal Pool and NHESP Habitat areas
- Add Conservation Restriction for permanent protection

#108 Forest Beach Upland

- Seek funding or volunteers to control early stage invasives at marsh overlook and woods
  - Bittersweet
  - Scotch Broom
  - Autumn Olive
- Control trail erosion to Bay View Road
- Add Conservation Restriction for permanent protection

• Sites with High Passive Recreation Potential, but Access Issues

#7 Mill Pond Forest

- As Chatham plans for future of the adjacent TW Nickerson Property, public access and parking for this area should be clearly established.
- Address encroachment issues (Some may be resolved through Town purchase of TW Nickerson Property)
- Seek funding or volunteers to develop pond overlooks from existing trails
- Seek funding or volunteers to create loop rail and create a replacement for section of old Town Line Trail that has been undermined by gravel mining encroachment from the Harwich side.
- Seek funding or volunteers to remove starter invasives
- Seek funding for Trail Map Kiosk
- Add Conservation Restriction for permanent protection

McCoy Tree Farm

- Create Roadside parking
- Create Trail link to existing network
- Seek finding for Trail Map Kiosk
- Add Conservation Restriction for permanent protection

High Priority Management Action Sites continued

• Parcels with Visible Frontage on Route 28, Overgrown with Invasive Plants

These three sites are small, but are very much in the public view. The clean up of invasives will not only prevent further environmental degradation, but will also provide visible improvement and a more attractive main roadway through town.

- Seek funding or volunteers to cleanup invasives
- Keep enhancements minimal
- Add Conservation Restriction for permanent protection if not already done

#43	Ryders Cove East and West (See Appendix 2 for plan to address invasive infestations)
#103	McClure
#124	Hill Parcel

#102 McClure Parcel, F. McClennen

Medium Priority Management Action Sites

These medium priority sites are those that are already being used by the public without major issues, or water department well sites where heavy public access should not be encouraged.

- Larger Areas with Trail Focus;
  - Seek funding for limited off street parking, within site of public way
  - Seek funding for signage and trail map kiosk
  - Seek funding for gates to control motorized vehicles and dumping
  - Add Conservation Restriction for permanent protection

#6	Town Forest
#15	Goose Pond Lower
#16	Goose Pond Upper
#31	George Ryder Forest
#	Valley Farm (Marquit)

- Larger Parcels with Trail Focus and Existing Parking Lot;
  - Seek funding for signage and trail map kiosk
  - Add Conservation Restriction for permanent protection

#22	Sam Ryder & Indian Hill North and adjacent Volunteer Park

- Larger Waterfront Parcels with Some Parking
  - Accept use as beach and water access
  - Designate specific paths to avoid vegetation damage

#21	Ridgevale Beach - Avoid erosion with controlled dune paths
#89	Stage Harbor Point - New Loop Trail Potential
#90	Morris Island Dike - Avoid erosion with controlled dune path

- Town Water Well Parcels
  - Gated parcels with existing or potential trails.
  - Open Entrances with No Trespassing Signs cause confusion
  - Work with Water Department on unified policy and signage
  - Add Special Water Dept. and Conservation Rules and Regulations Signage
  - Prohibit motorized vehicles; allow foot access only
  - Water Department use provides extra layer of protection

#6	Town Forest Well Site – Existing Trails & Links to Conservation Land
#28	Indian Hill Well Site – Existing Trails & Links to CCF parcels
#30	Training Field Well Site - Potential Trails to link Training Field Triangle & CCF Lovers Lake land

Medium Priority Management Action Sites continued

These medium priority sites are located on Roue 28 where they have public visual access. They are not suitable for woodland nature walks but their public prominence warrants management attention.

- Small Parcels on Route 28 with Public Focus;
  - Create attractive welcoming Open Space, but keep enhancements to a minimum
  - Seek funding for simple enhancements
    - Signage
    - Bench
  - Add Conservation Restriction for permanent protection

# 128	Onembo Some encroachment & invasives
# 126	Capt. George N. Harding Invasives have been cleaned up New trail loop is somewhat overdone and inconsistent with conservation goals and use

- Larger Parcels on Route 28 with Public Focus;
  - Keep as attractive welcoming Open Space, but keep enhancements to a minimum
  - Seek funding for simple enhancements
    - Signage
    - Bench
    - Simple path
  - Add Conservation Restriction for permanent protection

#4	Red River Valley Property Possible “meditation path” from cemetery
# 67	Hamden Place Some early invasives Some encroachment
#102	Kolb Possible bike trail interest

Low Priority Management Action Sites

These sites are suggested to be low priority due to their size, location or physical characteristics. They are not sites that have potential of high public use.

- Small isolated subdivision parcels
  - Educate neighbors to prevent dumping of yard waste
  - Encourage neighborhood "adoption" for cleanup and maintenance
  - Need to create a sense of "neighborhood ownership"
    (These might have been better protected by a CR and be attached to an individual homeowner for maintenance)
  - Add Conservation Restriction for permanent protection

#6D	Morton Road Forest Triangle –isolated parcel across from Town Forest
#13	Middle Road - heavy invasives
#105	Pleasant Corner - corner lot could be neighborhood focus with bench

- Small parcels adjacent to other protected Land
  - Coordinate management with abutter
  - Add Conservation Restriction for permanent protection

#20	Muddy Creek Bluff - Adjacent to CCF land – overlook potential
#38	Lovers Lake Bluff - Steep parcel behind old Cemetery – overlook potential
#104	Honeysuckle Lane - Adjacent to CCF land
#123	Skunks Neck - Half of parcel held by CCF

- Overgrown Wetland Parcels surrounded by private parcels under similar conditions
  - Leave as wildlife habitat
  - Add Conservation Restriction for permanent protection

#51	Absegami Run
#101	Ivy Lane-Black Pond
#110	Sybil Drive

- Parcels with Fragile Habitats;
  - Limit public access to prevent habitat degradation

#14	Ministers Bog - Clear invasives from roadside slope and add bench overlook
#21	Ridgevale Marsh - Clear invasives from roadsides
#35	Cedar Swamp - Keep access road blocked to avoid dumping
#66	Stage Island
#69	Strong Island Marsh
#100	Mill Hill Bog - limited access to perimeter path with possible bench
#108	Forest Beach Marsh

Low Priority Management Action Sites continued

- Parcels with limited or no public Access

  Keep as wildlife habitat

  #1 Red River Swamp - land-locked

  #130 Seaquanset - paper Road is overgrown

- Small Saltwater Front Parcel with virtually no parking and limited options
  - Accepted use as beach foot access

    #114 Fitchett Parcel

APPENDICES

#29 Training Field Triangle invasives, F. McClennen

APPENDIX #1

Invasive Species Management Plan for #29 Training Field Triangle

Prepared by Seth Wilkinson, MALD August 6, 2007

GOAL

The goal of this plan is to restore the native plant community and enhance the pedestrian experience for the Training Field Triangle Conservation Area. Invasive plant species will be selectively removed over time in order to enhance the biodiversity of this parcel.

OBJECTIVE

Biological diversity, wildlife habitat, and improved trail maintenance will be enhanced through intensively managing invasive plants as well as managing aggressive native plants. Plant management will be a critical objective because state-recognized invasive species threaten both biological diversity and the wildlife habitat of this parcel.

ACTIONS

Specific Plant Actions:

Note: The most recent science on invasive plant control underscores the importance of well-timed management treatments. Cutting will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the target plant and eliminating carbohydrate stores, which weaken the plant over time. Cutting will also be phased in order to steadily select out the invasive species in favor of more suitable native plants. A program of selective herbicide application will be instituted during time periods when the plants will translocate the herbicide most efficiently and destroy root materials. As the carbohydrate transfer is dictated primarily by weather, the management timeline is specified by season only, necessitating field expertise to initiate timely management procedures.

Asiatic Bittersweet, (Celastrus orbiculatus) poses the greatest threat to the preservation of this Maritime Shrubland plant community. Asiatic bittersweet has been officially classified as an invasive plant in Massachusetts, because it has the ability to overwhelm open fields and forests alike, forming dense stands of the aggressive vine. The plants are presently very healthy and should be considered a significant management threat. A treatment schedule, based on the phenology of the plant is outlined below. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. By commencing management with a cut stem application of herbicide, re-sprouting in the subsequent growing season will be dramatically reduced.

Shrub Honeysuckle (Lonicera morrowii & bella) & Multiflora Rose (Rosa multiflora) also pose a major threat to this conservation area. These species aggressively out-competes other native shrubs in the understory and along critical edge habitat. Honeysuckle and multiflora rose should be mechanically uprooted from the soil. Regular hand pulling of juvenile plants and spot herbicide treatments are also recommended for persistent re-sprouts.

Border Privet (Ligustrum spp.) is a significant management problem on this parcel. Border privet; which can grow into a small tree, is particularly aggressive in heavier soils and adjacent to wetland resources with mature plants annually produce hundreds of viable seedlings which spread the species rapidly through a variety of habitats. Smaller border privet plants should be mechanically uprooted with follow up treatments of mechanical removal and/or spot application of herbicide on larger plants and persistent re-sprouts.

Japanese Knotweed (Falopia japonica) is limited to an isolated area near main entrance off Old Queen Anne Road. This particularly aggressive species has the ability to colonize large areas if left unmanaged. Japanese knotweed can be successfully managed by injecting a dilute, Glyphosate-based herbicide directly into the stem of the plant in mid or late summer.

Poison Ivy (Toxidendron radicans) is an aggressive native species. While this plant plays a functional habitat role, serving as escape cover, food source, and nest sites for some species, they can also out-compete other native species and can hinder restoration efforts by rapidly colonizing recently managed areas. In addition poison ivy tends to degrade the user experience when it grows very close to the edge of conservation trails. Selective management of these species should be carefully conducted as part of the restoration plan to prevent excessive colonization of managed areas. As eradication is not the goal for this species, mechanical management is recommended along trails if funds are available for regular mowing, otherwise spot foliar application of a selective herbicide would be most effective.

Porcelain-berry (Ampelopsis brevipeduculata) appears along the trail near the east corner if the site. A treatment schedule, based on the phenology of the plant is outlined in the management timeline. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. Management of this species will proceed in concert with the management of Asiatic bittersweet.

Black Locust (Robinia pseudoacacia) is the significant invasive tree observed on this parcel. This tree spreads rapidly at full sexual maturity. By managing the invasive tree, understory species will respond positively, increasing fruit production and understory canopy development. Additional sunlight will also enhance the herbaceous groundcovers.

Note: Black Locust is known to re-sprout vigorously after removal. Substantial root sucker growth should be expected from the remaining root material within 60 days of the initial removal. Re-sprouting can be minimized with the application of a glyphosate-based herbicide applied directly to the cut stem.

3 Year Management Timeline for #29 Training Field Triangle

Fall Year 1

Treat all Asiatic Bittersweet vines and Porcelain-berry greater than 1" in basal diameter by cutting the vine 4-6" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. Do not attempt to pull cut vines out of trees as this will likely damage the trees. Conduct a low-volume foliar spray of a 2% Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry stems less than 1" in diameter.
Commence removal of invasive shrub species by mechanically uprooting shrub honeysuckle, multiflora, and border privet with basal diameters up to 2.5 inches in diameter. Conduct cut stump treatments of all invasive shrubs greater than 2.5 inch basal diameter. Once these species are cut 4-6" off the ground, a 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
If Japanese Knotweed (Largest concentration is along Old Queen Anne Road) is still actively photosynthesizing, inject 5 cc's of a 4% Glyphosate-based herbicide directly into the individual stems greater than 1/2" diameter. Conducting a controlled, low-volume foliar spray of a 4% Glyphosate-based herbicide to all knotweed less than æî diameter.
Treat black locust trees (Largest concentration is along Old Queen Anne Road) by conducting a frill cut (cut back bark to expose green cambium layer in 3-4 locations around the base of the tree) and immediately wipe on a 40% concentration of a Glyphosate-based herbicide onto the cambium tissue. This should dramatically limit the amount of sucker growth after the tree is cut down in winter.

Winter Year1/Year2

When daytime temperatures are consistently above freezing, treat all live Asiatic bittersweet vines and Porcelain-berry by cutting the vine 4-6" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem.
Continue managing re-sprouted invasive plant material using the cut-stump application method. Flush cut target species of shrub honeysuckle, multiflora rose, border privet, autumn olive and black locust. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
Cut down black locust trees and if any live cambium tissue is encountered, wipe a Glyphosate-based herbicide at 40% concentration directly onto the cut stump of invasive trees immediately after cutting.

Spring Year 2

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.
In an effort to manage poison ivy along trail edges; mow trails within the conservation area to a width of 6-8í in the first two months of June.

3 Year Management Timeline for #29 Training Field Triangle continued

Summer Year 2

Mow trails within the conservation area to a width of 6-8" in the first two months of June.
As previously managed invasive plants re-sprout, selectively remove invasive plants using a selective, foliar spot application with a Triclopyr-based herbicide to all invasive plants after July 15th.
Repeat the above treatment in late summer.
Mow trails 30-45 days after initial spring mowing treatment.
If needed, mow trails 30-45 days after secondary mowing treatment.

Fall Year 2

Continue invasive plant management by using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and all other invasive shrubs.

Winter Year 2/Year 3

Treat all Asiatic bittersweet vines and Porcelain-berry by cutting any live vines 4-6" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. If previous yearís cut vines have decayed sufficiently so as to break free of branches with minimal effort, then dead vines may be removed.
Continue managing re-sprouted invasive material using the cut-stump application method. Flush cut target species of shrub honeysuckle, border privet, multiflora rose, and black locust. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.

Spring Year 3

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.
In an effort to manage poison ivy along trail edges; mow trails within the conservation area to a width of 6-8" in the first two months of June.
If invasive plants have been reduced by 80% or more than the original populations, commence re-planting of any voids in the plant community left by the previous invasive plant management (if deemed necessary by the Conservation Administrator).

Summer Year 3

As previously managed invasive plants re-sprout, remove invasive plants using a selective, foliar spot application with a Triclopyr-based herbicide to all invasive plants after July 15th.
Repeat the above treatment in late summer.
Mow trails 30-45 days after initial spring mowing treatment.

If needed, mow trails 30-45 days after secondary mowing treatment.

3 Year Management Timeline for #29 Training Field Triangle continued

Fall Year 3

Continue invasive plant management by using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive plants.
Assess invasive plant response to earlier management treatments in October with Conservation Administrator.

Winter Year 3/Year 4

Manage any remaining re-sprouted invasive plants using the cut-stump application method. Flush cut any remaining live invasive species. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.

Spring Year 4

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.
If invasive plants have been reduced by 80% or more than the original populations, commence or continue re-planting of any voids in the plant community left by the previous invasive plant (if deemed necessary by the Conservation Administrator).
In an effort to manage poison ivy along trail edges; mow trails within the conservation area to a width of 6-8í in the first two months of June.

Summer Year 4

Should any previously cut plants invasive plants re-sprout, selectively remove them by using a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs after July 15th.
Repeat the above treatment in late summer, if necessary.
Mow trails 30-45 days after spring mowing treatment. It is unlikely that any additional mowing will be necessary after the secondary mowing treatment.

Fall Year 4

If necessary, continue invasive plant management by using a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all invasive plants.
Assess invasive plant response to earlier management treatments in October with Conservation Administrator and re-evaluate land management goals, objectives and actions.

3 Year Management Timeline for #29 Training Field Triangle continued

Ongoing Maintenance:

After the fall of year four, if management treatments have been successful it is possible that invasive plants could be reduced to low enough numbers that an annual hand removal strategy will suffice to essentially keep them out of the landscape (this will vary depending on actual carbohydrate stores in the roots and environmental conditions throughout the treatment period). After fall of year 4, the management plan should be assessed and re-evaluated. Invasive plants generally take a minimum of three to five years of active management to reach a level of successful control. Annual monitoring and minimal maintenance should be ongoing.

General Notes:

Herbicide use to be applied by knowledgeable, licensed individuals only.

Foliar applications of herbicide shall be limited to light wind days with a forecast of precipitation at 20% of less within 24 hours after application.

APPENDIX #2

Invasive Species Management Plan for #43 Ryders Cove

Prepared by Seth Wilkinson, MALD August 27, 2007

GOAL

The goal of this plan is to restore the native plant community on and around the coastal bank adjacent to Ryders Cove within the Pleasant Bay Area of Critical Environmental Concern (ACEC). Invasive plant species will be selectively removed over time in order to enhance the biodiversity of this parcel.

OBJECTIVES

Biological diversity, wildlife habitat, and stability of the coastal bank will be enhanced through intensively managing invasive plants as well as installing indigenous plants and encouraging existing native plants. High habitat value, maritime plant species will be encouraged. Invasive plant management will be a critical objective because state- recognized invasive species threaten both biological diversity and the wildlife habitat of this parcel. This plan will cover three parcels of land adjacent to a small gravel parking area. The parcel to the west of the parking area is referred to as Ryders Cove West and the two parcels to the east are referred to as Ryders Cove East. A management protocol which relies heavily on mechanical removal is recommended given the level of invasion and the proximity to an environmentally sensitive area.

Areas which are heavily invaded with Asiatic bittersweet (referred to below as Area A) will be restored to a warm season grassland community. Areas with less intense Asiatic bittersweet invasion (referred to below as Area B) shall be managed and allow to re-vegetate naturally as a maritime shrubland community.

ACTIONS

Specific Plant Actions:

Note: The most recent science on invasive plant control underscores the importance of well-timed management treatments. Cutting will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the target plant and eliminating carbohydrate stores, which weaken the plant over time. Cutting will also be phased in order to steadily select out the invasive species in favor of more suitable native plants at a rate that will not compromise the stability of the stream bank and surrounding area. As the carbohydrate transfer is dictated primarily by weather, the management timeline is specified by season only, necessitating field expertise to initiate timely management procedures.

Asiatic Bittersweet, (Celastrus orbiculatus) poses the greatest threat to the preservation of the coastal bank and surrounding forest community. Asiatic bittersweet has been officially classified as an invasive plant in Massachusetts, because it has the ability to overwhelm open fields and forests alike, forming dense stands of the aggressive vine. The plants are presently very healthy and should be considered a significant management threat. A treatment schedule, based on the phenology of the plant is outlined below. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. By commencing management with a cut stem application of herbicide, re-sprouting in the subsequent growing season is dramatically reduced.

Shrub Honeysuckle (Lonicera morrowii and x bella) also pose a substantial threat to this native plant community. This species aggressively out-competes other native shrubs in the understory and along critical edge habitat. Honeysuckle shrubs should be mechanically uprooted from the soil. Regular hand pulling of juvenile honeysuckle plants and/or spot herbicide treatments is also recommended.

Multiflora Rose (Rosa multiflora) and Border Privet (Ligustrum spp.) are dominant plants on the coastal bank and buffer area and both have been officially classified as invasive plants in Massachusetts. The unique growth habit of multiflora rose allows it to form a structural staging, allowing the plant to creep high into the understory, aggressively out-competing all other understory vegetation. Border privet is particularly aggressive in heavier soils close to wetland resources with mature plants annually producing thousands of viable seedlings which spread the species rapidly through a variety of habitats. Multiflora rose and border privet should be mechanically uprooted with follow up treatments of mechanical removal and/or spot application of herbicide.

Green Briar/Cat Briar (Smilax rotundifolia, glauca) and Poison Ivy (Toxidendron radicans) are aggressive native species. While these plants play a functional habitat role, serving as escape cover, food source, and nest sites for some species, they can also out-compete other native species and can hinder restoration efforts by rapidly colonizing recently managed areas. Selective management of these species should be carefully conducted as part of the restoration plan to prevent excessive colonization of managed areas. As eradication is not the goal for this species, only mechanical management is recommended.

Upland restoration: There are many beneficial native plant species already growing on the coastal bank and buffer area. Remnant apple trees, marsh iva, bayberry, Carolina rose, arrowwood viburnum and other native plants will be protected and preserved during invasive plant management. After invasive plant management, it may be necessary to re-vegetate certain areas where invasive plants had dominated prior to the implementation of work. Re-vegetation will be comprised of seeding with warm season grasses wildflowers in the first growing season, followed by plugs, bare root cuttings, and maritime shrub plantings if deemed necessary by the Conservation Administrator.

3 Year Management Timeline for #43 Ryders Cove

Winter Year 1

In consultation with the Conservation Administrator; delineate the stands of Asiatic Bittersweet into two categories based on the density of the vine. Portions of the project area where there is a high density of small diameter vines should be delineated as Area A. Portions where ground layer vegetation is still intact or where the native plant community is not severely invaded and the density of bittersweet vine is not high, should be delineated as Area B. While Ryders Cove West does have some significant specimens of shrub honeysuckle, the majority of this area would appear to meet the lesser stage invasion criteria for Area B.
Within Area B (when daytime temperatures are consistently above freezing): treat all Asiatic bittersweet vines by cutting the vine 4-6" from the ground and wiping on a concentrated Glyphosate-based herbicide to the cut stem.
Once vine treatment is complete in Area B, commence mechanical removal of all invasive shrubs (shrub honeysuckle, border privet & multiflora rose). This activity will be conducted using a small loader with a shear to effectively uproot these shrubs which range between 2-6 inches (basal diameter). Prior to uprooting, the tops of the invasive plants may be mulched using a heavy brush mower to deposit a light covering of coarse woody mulch to help prevent erosion (Heavy equipment should either be a track loader with less than 3.0 PSI ground pressure, or a small loader {5 tons or less operating weight} with all-wheal steering or an articulating body in order to minimize soil disturbance and compaction). In areas not accessible by heavy equipment either due to slope or proximity of native plant materials to be preserved), invasive shrubs shall be flush cut and a Glyphosate-based herbicide at 40% concentration shall be wiped onto the cut stump.
Within Area A: Root rake soils in the delineated area to a depth of 6-8 inches using a hydraulic root rake mounted on a small track loader with less than 3.0 PSI ground pressure. Thoroughly root rake Area A and responsibly dispose of all root materials off-site.
Immediately following root raking treatment; seed all disturbed areas with a native warm season grass and wildflower seed mix and cover all slopes with 100% biodegradable (plastic free) erosion control blankets staked in place with biodegradable turf staples or anchors.

Spring Year 1

Monitor invasive plant response and calibrate for summer management activities.
Evaluate Area B with the Conservation Administrator to determine the density of maritime shrub plantings needed (if any) to fully re-vegetate the work area.

Summer Year 1

As previously cut plants re-sprout; selectively remove invasive plants either by hand-pulling, re-cutting or hand application of a glyphosate-based herbicide soon after leaves have fully developed within the all project areas.
Repeat this treatment in late summer.

3 Year Management Timeline for #43 Ryders Cove

Fall Year 1

Flush cut any re-sprouted invasive plants and brush a Glyphosate-based herbicide directly onto the cut stem in early to mid fall.
If invasive plants have been managed to remove 80% or more of the original population, commence re-planting maritime shrubs in Area B.

Spring Year 2

If necessary, over-seed any voids in Area A with a warm season grass mix and supplement seeded areas with plugs and bare root cuttings of stiff-leaved quack grass, seaside goldenrod, and salt marsh cord grass (Spartina patens ñ while this grass is commonly associated with the upper elevations of salt marshes, it thrives in the transitional upland areas as well).
Monitor invasive plant response and calibrate for summer management activities.

Summer Year 2

As previously cut plants re-sprout, selectively remove invasive plants either by hand-pulling, re-cutting or hand application of a glyphosate-based herbicide soon after leaves have fully developed within all areas.
Repeat this treatment in late summer.

Fall Year 2

Flush cut any persistent invasive plants and brush a Glyphosate-based herbicide directly onto the cut stem in early to mid fall within all areas.

Spring Year 3

Monitor invasive plant response and calibrate for summer management activities.

Summer Year 3

As previously cut plants re-sprout, selectively remove invasive plants either by hand-pulling, re-cutting or hand application of a glyphosate-based herbicide soon after leaves have fully developed within all areas.
Repeat this treatment in late summer.

Fall Year 3

Flush cut any remaining invasive plants and brush a Glyphosate-based herbicide directly onto the cut stem in early to mid fall within all areas.

3 Year Management Timeline for #43 Ryders Cove

Ongoing Maintenance:

After the fall of year 3, if all previous treatments have been effective; it is possible that invasive plants could be reduced to low enough numbers that an annual hand removal strategy will suffice to essentially keep them out of the landscape (this will vary depending on actual carbohydrate stores in the roots and environmental conditions throughout treatment period). After the third year, the management plan should be assessed and re-evaluated. Invasive plants generally take a minimum of five years of active management to reach a level of successful control. Annual monitoring and minimal maintenance should be ongoing.

APPENDIX #3

Invasive Species Management Plan for #107 Old Comers Woodland

Prepared by Seth Wilkinson, MALD July 24, 2007

GOAL

The goal of this plan is to restore the native plant community and provide public access into the Old Comers Woodland Conservation Area. Invasive plant species will be selectively removed over time in order to enhance the biodiversity of this parcel.

OBJECTIVE

Biological diversity and wildlife habitat will be enhanced through intensively managing invasive plants as well as installing indigenous plants and encouraging existing native plants and planted specimens. Invasive plant management will be a critical objective because state-recognized invasive species threaten both biological diversity and the wildlife habitat of this parcel. A heavily invaded field habitat will be restored in order to provide critical open habitat for wildlife and overgrown trails will be re-established to provide access through the property and facilitate invasive plant management.

ACTIONS

Specific Plant Actions:

Note: The most recent science on invasive plant control underscores the importance of well-timed management treatments. Cutting will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the target plant and eliminating carbohydrate stores, which weaken the plant over time. Cutting will also be phased in order to steadily select out the invasive species in favor of more suitable native plants. A program of selective herbicide application will be instituted during time periods when the plants will translocate the herbicide most efficiently and destroy root materials. As the carbohydrate transfer is dictated primarily by weather, the management timeline is specified by season only, necessitating field expertise to initiate timely management procedures.

Asiatic Bittersweet, (Celastrus orbiculatus) poses the greatest threat to the preservation of the forest community. Asiatic bittersweet has been officially classified as an invasive plant in Massachusetts, because it has the ability to overwhelm open fields and forests alike, forming dense stands of the aggressive vine. The plants are presently very healthy and should be considered a significant management threat. A treatment schedule, based on the phenology of the plant is outlined below. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. By commencing management with a cut stem application of herbicide, re-sprouting in the subsequent growing season will be dramatically reduced.

Shrub Honeysuckle (Lonicera morrowii and bella) also poses a substantial threat to this conservation area. This species aggressively out-competes other native shrubs in the understory and along critical edge habitat. This species should be mechanically uprooted from the soil where possible and the cut stump application method should be used where it is not feasible to mechanically uproot. Regular hand pulling of juvenile plants and spot herbicide treatments are also recommended for persistent re-sprouts.

Multiflora Rose (Rosa multiflora) and Border Privet (Ligustrum spp.) are significant management problems on this parcel. The unique growth habit of multiflora rose allows it to form a structural staging, allowing the plant to creep high into the understory, aggressively out-competing all other understory vegetation. Border privet; which can grow into a small tree, is particularly aggressive in heavier soils and adjacent to wetland resources with mature plants annually produce hundreds of viable seedlings which spread the species rapidly through a variety of habitats. Smaller multiflora rose and border privet plants should be mechanically uprooted with follow up treatments of mechanical removal and/or spot application of herbicide on larger plants and persistent re-sprouts.

Porcelain-berry (Ampelopsis brevipeduculata) appears around the meadow at the east end if this area. A treatment schedule, based on the phenology of the plant is outlined in the management timeline. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. Management of this species will proceed in concert with the management of Asiatic bittersweet.

Vine Honeysuckle (Lonicera japonica) is currently scattered throughout the ground layer and understory. Where feasible, mechanical removal of this vine is recommended. Follow up maintenance should consist of a late fall application of Triclopyr-based herbicide to eradicate these species from the plant community. Vine honeysuckle is opportunistic and will colonize managed areas if it is left untreated.

Sycamore maple (Acer pseudoplatanus) is the significant invasive tree specie observed on this parcel. Sycamore maple readily re-sprout from the stump when cut. This tree spreads rapidly at full sexual maturity. By managing this invasive tree, the numerous understory species will respond positively, increasing fruit production and understory canopy development. Additional sunlight will also enhance the herbaceous groundcovers.

Green Briar/Cat Briar (Smilax rotundifolia, glauca) and Poison Ivy (Toxidendron radicans) are aggressive native species. While these plants play a functional habitat role, serving as escape cover, food source, and nest sites for some species, they can also out-compete other native species and can hinder restoration efforts by rapidly colonizing recently managed areas. Selective management of these species should be carefully conducted as part of the restoration plan to prevent excessive colonization of managed areas. As eradication is not the goal for this species, only mechanical management is recommended.

3 Year Management Timeline for #107 Old Comers Woodland

Winter Year 1

Treat all Asiatic bittersweet vines and Porcelain-berry greater than 1" in basal diameter by cutting the vine 4-6" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. Do not attempt to pull cut vines out of trees as this will likely damage the trees.
Once vine treatment is complete, commence mechanical removal of all invasive shrubs (shrub honeysuckle, border privet, burning bush & multiflora rose). This activity will be conducted when soils are moist and unfrozen (to facilitate full root removal) using low ground pressure heavy equipment equipped with a shear or 4-in-1 bucket to effectively uproot these shrubs which range between 1-6 inches (basal diameter). Multiflora rose, and border privet shrubs greater than 3î stem diameter will not readily uproot. While 3" stem diameter specimens of these three species are not widespread on this parcel, these large diameter shrubs should be flush cut and a 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
Clear all previously open areas of brush and invasive plants using a heavy brush mower. Continue this treatment approximately fifty feet into the forested area in order to treat the heaviest invasion of exotic plants.
If necessary, lightly cover any disturbed areas with a coarse woodchip mulch.

Spring Year 1

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.

Summer Year 1

As previously cut plants re-sprout, selectively remove invasive plants using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs after July 15th.
Repeat the above treatment in late summer.
Cut any green briar and poison ivy vines to the ground within and adjacent to management areas to limit colonization of the managed area.

Fall Year 1

Continue invasive plant management by using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide to selected vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small

quantities).

3 Year Management Timeline for #107 Old Comers Woodland continued

Winter Year 2

Treat all Asiatic bittersweet vines and Porcelain-berry by cutting the vine 4-6" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. If previous year's cut vines have decayed sufficiently so as to break free of branches with minimal effort, then dead vines may be removed.
Assuming all opportunities for mechanical removal of invasive shrubs have been exhausted, continue managing re-sprouted invasive material using the cut-stump application method. Flush cut target species of shrub honeysuckle, border privet and multiflora rose. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
If necessary, lightly cover any disturbed areas with a coarse, woodchip mulch.

Spring Year 2

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.
If invasive plants have been reduced by 80% or more than the original populations, commence re-planting of the grassland areas with native grasses and wildflowers (only if natural colonization of the area is not sufficient)

Summer Year 2

As previously cut plants re-sprout, selectively remove invasive plants using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs after July 15th.
Repeat the above treatment in late summer.
Cut any green briar and poison ivy vines to the ground within and adjacent to management areas to limit colonization of the managed area.

Fall Year 2

Continue invasive plant management by using a selective, foliar spot application with a Triclopyr-based herbicide to all Asiatic bittersweet and Porcelain-berry re-sprouts and a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs.
Assess invasive plant response to earlier management treatments in October with Conservation Administrator.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide to selected vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small quantities).

Winter Year 3

Manage any remaining re-sprouted invasive plants using the cut-stump application method. Flush cut target species of Asiatic bittersweet, Porcelain-berry, shrub honeysuckle, border privet and multiflora rose. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.

3 Year Management Timeline for #107 Old Comers Woodland continued

Spring Year 3

Monitor invasive plant response to earlier management treatments and calibrate upcoming treatments to correspond with the observed plant response.
If invasive plants have been reduced by 80% or more than the original populations, commence re-planting of the grassland areas with native grasses and wildflowers (only if natural colonization of the area is not sufficient)

Summer Year 3

Should any previously cut plants invasive plants re-sprout, selectively remove them by using a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all other invasive shrubs after July 15th.
Repeat the above treatment in late summer, if necessary.
Cut any green briar and poison ivy vines to the ground within and adjacent to management areas to limit colonization of the managed area.

Fall Year 3

If necessary, continue invasive plant management by using a a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide to all invasive plants.
Assess invasive plant response to earlier management treatments in October with Conservation Administrator and re-evaluate land management goals, objectives and actions.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide to selected vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small quantities).

Ongoing Maintenance:

After the fall of year four, if management treatments have been successful it is possible that invasive plants could be reduced to low enough numbers that an annual hand removal strategy will suffice to essentially keep them out of the landscape (this will vary depending on actual carbohydrate stores in the roots and environmental conditions throughout the treatment period). After fall of year 4, the management plan should be assessed and re-evaluated. Invasive plants generally take a minimum of three to five years of active management to reach a level of successful control. Annual monitoring and minimal maintenance should be ongoing.

General Notes:

Herbicide use to be applied by knowledgeable, licensed individuals only.

Foliar applications of herbicide shall be limited to light wind days with a forecast of precipitation at 20% of less within 24 hours after application.

APPENDIX #4

Invasive Species Management Plan for #129 Rolf E. Sylvan Gardens

Prepared by Seth Wilkinson, MALD February 28, 2007

GOAL

The goal of this plan is to restore the native plant community and preserve the specimen plantings on the upland portions of the Rolf E Sylvan Gardens Conservation Area. Invasive plant species will be selectively removed over time in order to enhance the biodiversity of this parcel.

OBJECTIVES

Biological diversity and wildlife habitat will be enhanced through intensively managing invasive plants and supporting the remaining indigenous plants and encouraging existing native plants and planted specimens. Invasive plant management will be a critical objective because state-recognized invasive species threaten both biological diversity and the wildlife habitat of this parcel. Pedestrian access and the user experience will be improved with implementation of this plan.

ACTIONS

Specific Plant Actions:

Note: The most recent science on invasive plant control underscores the importance of well-timed management treatments. Cutting will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the target plant and eliminating carbohydrate stores, which weaken the plant over time. Cutting will also be phased in order to steadily select out the invasive species in favor of more suitable native plants. A program of selective herbicide application will be instituted during time periods when the plants will translocate the herbicide most efficiently and destroy root materials. As the carbohydrate transfer is dictated primarily by weather, the management timeline is specified by season only, necessitating field expertise to initiate timely management procedures.

Asiatic Bittersweet, (Celastrus orbiculatus) poses the greatest threat to the preservation of the forest community. Asiatic bittersweet has been officially classified as an invasive plant in Massachusetts, because it has the ability to overwhelm open fields and forests alike, forming dense stands of the aggressive vine. The plants are presently very healthy and should be considered a significant management threat. A treatment schedule, based on the phenology of the plant is outlined below. Cutting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. By commencing management with a cut stem application of herbicide, re-sprouting in the subsequent growing season will be dramatically reduced.

Shrub Honeysuckle (Lonicera morrowii and bella) and Burning Bush (Euonymous alatus) also pose a substantial threat to this conservation area. This species aggressively out-competes other native shrubs in the understory and along critical edge habitat. Honeysuckle and burning bush should be mechanically uprooted from the soil. Regular hand pulling of juvenile plants and spot herbicide

treatments are also recommended for persistent re-sprouts.

Multiflora Rose (Rosa multiflora) and Border Privet (Ligustrum spp.) are significant management problems on this parcel. The unique growth habit of multiflora rose allows it to form a structural staging, allowing the plant to creep high into the understory, aggressively out-competing all other understory vegetation. Border privet; which can grow into a small tree, is particularly aggressive in heavier soils and adjacent to wetland resources with mature plants annually produce hundreds of viable seedlings which spread the species rapidly through a variety of habitats. Smaller multiflora rose and border privet plants should be mechanically uprooted with follow up treatments of mechanical removal and/or spot application of herbicide on larger plants and persistent re-sprouts.

Vine Honeysuckle (Lonicera japonica) is currently scattered throughout the ground layer and understory. Where feasible, mechanical removal of this vine is recommended. Follow up maintenance should consist of a late fall application of Triclopyr-based herbicide to eradicate these species from the plant community. Vine honeysuckle is opportunistic and will colonize managed areas if it is left untreated.

English Ivy (Hedera helix) is a challenging maintenance threat within this parcel. Uprooting and herbicide application will be scheduled when carbohydrates have been transferred from the roots to the above-ground portion of the plant, thus causing the most damage to the plant and eliminating carbohydrate stores, which weaken the plant over time. In areas with large populations of deciduous plants, herbicide application during the winter months can be utilized with this evergreen species, having no impact on surrounding non-target deciduous species.

Sycamore maple (Acer pseudoplatanus) is the significant invasive tree specie observed on this parcel. Sycamore maple readily re-sprout from the stump when cut. This tree spreads rapidly at full sexual maturity. By managing this invasive tree, the numerous understory species will respond positively, increasing fruit production and understory canopy development. Additional sunlight will also enhance the herbaceous groundcovers.

Green Briar/Cat Briar (Smilax rotundifolia, glauca) is an aggressive native species. While these plants play a functional habitat role, serving as escape cover and nest sites for some species, they can also out-compete other native species and can hinder restoration efforts by rapidly colonizing recently managed areas. Selective management of these species should be carefully conducted as part of the restoration plan to prevent excessive colonization of managed areas. As eradication is not the goal for this species, only mechanical management is recommended.

3 Year Management Timeline for #129 Rolf E. Sylvan Gardens

Winter Year 1

Treat all Asiatic bittersweet vines by cutting the vine 4-6î from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. Do not attempt to pull cut vines out of trees as this will likely damage the trees.
Determine which populations of English ivy and vine honeysuckle are not suitable for mechanical management (due to interspersion with beneficial plants) and conduct a dormant season low-volume foliar application with a 2% concentration of a Triclopyr-based herbicide (with surfactant) in temperatures between 40-55 degrees (F).
Once vine treatment is complete, commence mechanical removal of all invasive shrubs (shrub honeysuckle, border privet, burning bush & multiflora rose). This activity will be conducted when soils are moist and unfrozen (to facilitate full root removal) using low ground pressure heavy equipment equipped with a shear or 4-in-1 bucket to effectively uproot these shrubs which range between 1-6 inches (basal diameter). Burning bush, multiflora rose, and border privet shrubs greater than 3" stem diameter will not readily uproot. While 3" stem diameter specimens of these three species are not widespread on this parcel, these large diameter shrubs should be flush cut and a 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment. Prior to uprooting, the tops of the invasive plants may be mulched using a heavy brush mower to deposit a light covering of coarse woody mulch to prevent erosion in the winter months.
If necessary, lightly cover any disturbed areas with a coarse, woodchip mulch.

Spring Year 1

The uprooting process of woody shrubs can be continued in areas where avian nesting sites will not be disturbed. Contractor should coordinate directly with the Conservation Administrator to prevent any significant habitat disturbances.
Stabilize any minimally disturbed areas from previous uprooting treatments with the installation of a suitable native seed mix or a thick application of a coarse, woodchip mulch.

Summer Year 1

As previously cut plants re-sprout, selectively remove invasive plants either by hand-pulling, re-cutting or a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide soon after leaves have fully developed.
Repeat the above treatment in late summer.
Flush cut sycamore maple trees and either thoroughly stump grind the basal root crown to destroy basal buds or wipe a 40% concentration of a Glyphosate-based herbicide to the cambium ring of live tissue located at the perimeter of the stump.
Cut any green briar vines to the ground within and adjacent to management areas to limit colonization of the managed area and facilitate re-planting efforts in these locations.

3 Year Management Timeline for #129 Rolf E. Sylvan Gardens continued

Fall Year 1

Flush cut any re-sprouted invasive plants and brush a 40% concentration of a Glyphosate-based herbicide directly onto the cut stem.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide (with surfactant) to selected English ivy and vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small quantities).

Winter Year 2

Treat all Asiatic bittersweet vines by cutting the vine 4-6î" from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem. If previous year's cut vines have decayed sufficiently so as to break free of branches with minimal effort, then dead vines may be removed.
Continue treatment to remaining populations of English ivy and vine honeysuckle which were formerly determined to be unsuitable for mechanical management (due to interspersion with beneficial plants) and conduct a dormant season low-volume foliar application with a 2% concentration of a Triclopyr-based herbicide (with surfactant) in temperatures between 40-55 degrees (F).
Assuming all opportunities for mechanical removal of invasive shrubs have been exhausted, continue managing re-sprouted invasive material using the cut-stump application method. Flush cut target species of shrub honeysuckle, burning bush, border privet and multiflora rose. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
If necessary, lightly cover any disturbed areas with a coarse, woodchip mulch.

Spring Year 2

The uprooting process of woody shrubs can be continued in areas where avian nesting sites will not be disturbed. Contractor should coordinate directly with the Conservation Administrator to prevent any significant habitat disturbances.
Stabilize any minimally disturbed areas from previous uprooting treatments with the installation of a suitable native seed mix or a thick application of a coarse, woodchip mulch.

Summer Year 2

As previously cut plants re-sprout, selectively remove invasive plants either by hand-pulling, re-cutting or a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide soon after leaves have fully developed.
Repeat the above treatment in late summer.
Flush cut sycamore maple trees and either thoroughly stump grind the basal root crown to destroy basal buds or wipe a 40% concentration of a Glyphosate-based herbicide to the cambium ring of live tissue located at the perimeter of the stump.

Cut any green briar vines to the ground within and adjacent to management areas to limit colonization of the managed area and facilitate re-planting efforts in these locations.

3 Year Management Timeline for #129 Rolf E. Sylvan Gardens continued

Fall Year 2

Flush cut any re-sprouted invasive plants and brush a 40% concentration of a Glyphosate-based herbicide directly onto the cut stem.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide (with surfactant) to selected English ivy and vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small quantities).
Assess invasive plant response to earlier management treatments in October with Conservation Administrator.

Winter Year 3

Treat any remaining Asiatic bittersweet vines by cutting the vine 2-4î from the ground and wiping on a 40% concentration of a Glyphosate-based herbicide to the cut stem.
Continue treatment to populations of English ivy and vine honeysuckle which were formerly determined to be unsuitable for mechanical management (due to interspersion with beneficial plants) and conduct a dormant season low-volume foliar application with a 2% concentration of a Triclopyr-based herbicide (with surfactant) in temperatures between 40-55 degrees (F).
Assuming all opportunities for mechanical removal of invasive shrubs have been exhausted, continue managing re-sprouted invasive material using the cut-stump application method. Flush cut target species of shrub honeysuckle, burning bush, border privet and multiflora rose. A 40% concentration of a Glyphosate-based herbicide should be wiped directly onto the cut stump immediately following the cutting treatment.
If necessary, lightly cover any disturbed areas with a coarse, woodchip mulch.

Spring Year 3

The uprooting process of woody shrubs can be continued in areas where avian nesting sites will not be disturbed. Contractor should coordinate directly with the Conservation Administrator to prevent any significant habitat disturbances.
Stabilize any minimally disturbed areas from previous uprooting treatments with the installation of a suitable native seed mix or a thick application of a coarse woodchip mulch.
Observe management areas and if 80% or greater control of invasive species has been attained, begin re-planting process. Species, density and spacing of restoration plantings should be discussed and approved by the Conservation Administrator.

3 Year Management Timeline for #129 Rolf E. Sylvan Gardens continued

Summer Year 3

As previously cut plants re-sprout, selectively remove invasive plants either by hand-pulling, re-cutting or a cut & wipe application of a 40% concentration of a Glyphosate-based herbicide soon after leaves have fully developed.
Repeat the above treatment in late summer.
Flush cut any remaining sycamore maple re-sprouts and either thoroughly stump grind the basal root crown to destroy basal buds or wipe a 40% concentration of a Glyphosate-based herbicide to the cambium ring of live tissue located at the perimeter of the stump.
Cut any green briar vines to the ground within and adjacent to management areas to limit colonization of the managed area and facilitate re-planting efforts in these locations.

Fall Year 3

Flush cut any re-sprouted invasive plants and brush a 40% concentration of a Glyphosate-based herbicide directly onto the cut stem.
In early November, after most other deciduous plants have gone dormant, conduct a low-volume foliar application of a 2% concentration of a Triclopyr-based herbicide (with surfactant) to selected English ivy and vine honeysuckle populations (only if deemed necessary by the Conservation Administrator, otherwise hand pull small quantities).
Continue replanting of the managed areas in consultation with the Conservation Administrator.
Assess invasive plant response to earlier management treatments in October with Conservation Administrator and re-evaluate land management goals, objectives and actions.

Ongoing Maintenance:

After the fall of year four, if management treatments have been successful it is possible that invasive plants could be reduced to low enough numbers that an annual hand removal strategy will suffice to essentially keep them out of the landscape (this will vary depending on actual carbohydrate stores in the roots and environmental conditions throughout the treatment period). After fall of year 4, the management plan should be assessed and re-evaluated. Invasive plants generally take a minimum of three to five years of active management to reach a level of successful control. Annual monitoring and minimal maintenance should be ongoing.

General Notes:

Herbicide use to be applied by knowledgeable, licensed individuals only.

Foliar applications of herbicide shall be limited to light wind days with a forecast of precipitation at 20% of less within 24 hours after application.

APPENDIX #5

Chatham Conservation Land Management Project Public Presentation

Presented by Herb Heidt Chatham Town Hall October 24, 2007