

WEIR FARM
NATIONAL HISTORIC SITE

**PRESERVATION MAINTENANCE PLAN:
OPERATIONS MANUAL AND
MAINTENANCE RECORDS**



Olmsted Center for
Landscape Preservation



National Park Service

JANUARY 1999

WEIR FARM NATIONAL HISTORIC SITE

PRESERVATION MAINTENANCE PLAN: OPERATIONS MANUAL AND MAINTENANCE RECORDS

Olmsted Center for
Landscape Preservation



National Park Service

Prepared by:

Gina Bellavia

Historical Landscape Architect, OCLP

Marybeth Hanley

Landscape Preservation Intern, OCLP

Greg Waters

Horticulturist, WEFA

Prepared for:

Weir Farm National Historic Site

National Park Service

January 1999

INTRODUCTION

Introduction

Operations Manual and Maintenance Records

The Operations Manual and Maintenance Records binder contains information about the existing condition of the landscape and procedures recommended for stabilizing and preserving these features using recommended preservation maintenance practices. Maintenance calendars, in both quick reference format and monthly form, clearly indicate the proper timing for individual maintenance tasks necessary to preserve the landscape at Weir Farm. The maintenance calendars are intended to facilitate work planning, budgeting, and staff scheduling.

The operations manual is organized according to the prioritized landscape maintenance issues identified by park staff at the initial scoping meeting for this project. The issues are as follows: Secret Garden maintenance, Sunken Garden maintenance, maintenance of planting beds and borders, turf management, orchard tree maintenance, specimen shrub and tree maintenance, invasive plant management, field edge management, and stone wall maintenance. Each of these issues is represented in a separate section in the binder. Maintenance of the gardens, trees and shrubs, and orchard trees are addressed in sub-sections within the specific area in which they are located. For example, the Sunken Garden is a sub-section of the Burlingham Complex as are tree and shrub maintenance and orchard tree maintenance.

The maintenance of individual plant material was treated somewhat differently than maintenance issues that have a broad application on the property. Trees and shrubs were identified using the numbering system described above and are found on area maps located within each section (a full size map of the property is located in the back pocket of this binder). An inspection was completed documenting the condition of the plant and any maintenance work required to improve or stabilize its' health. Similarly, the herbaceous perennials in each of the gardens were identified with a plant code and their condition and maintenance requirements documented. This information was put into a database and *Inventory, Condition Assessment and Work Needed* reports were generated. The reports identify preservation maintenance work needed based on historic significance, condition, and health and safety. These "reports" also include space for future condition assessment information. It is recommended that condition assessments be conducted on an annual basis (blank condition inspection forms can be found in Appendix C). The information collected should be added to the *Inventory, Condition Assessment and Work Needed* reports. As time allows, this information should be added to the existing database and new reports generated to replace the 1998 reports (see Access files on zip diskette in front pocket of Operations Manual and Maintenance Records binder). The 1998 reports should be filed in the recordkeeping section of this binder along with any other documentation related to the preservation maintenance of the landscape.

Other maintenance issues applying to landscape features found site-wide were discussed in a more general sense rather than individually. For example, stone wall maintenance was discussed as it applies to all stone walls on-site rather than discussing the maintenance of each individual wall. The following sections were discussed in this manner: maintenance of planting beds and borders, turf management, invasive plant management, field edge maintenance, and stone wall maintenance. Each of these issues were discussed in terms of their historic appearance or intent, existing condition, and general preservation maintenance guidelines. Site maps are located at the end of the section to identify specific features if necessary.

A general landscape maintenance calendar as well as an Integrated Pest Management calendar is included to facilitate work planning. These calendars will ensure the proper timing of maintenance activities that will result in the preservation and perpetuation of the historic character of the property. Following the calendars is a series of appendices that include information on specific products recommended for use at Weir Farm, blank inspection forms, and plant replacement sources. Park staff is encouraged to add additional information to the appendices as deemed necessary.

Finally, the record keeping section of this binder is intended for filing old reports, work completed lists, summary reports from consultants, field notes, etc. Any pest problems, treatments, removals, replacements, and propagation notes are important aspects of the history and evolution of this property and should be added to the preservation record.

Introduction

The preservation process consists of two major facets of work, preservation planning and preservation maintenance. Preservation planning is the process of researching, documenting, and deciding how to treat the landscape. Preservation maintenance is the act of caring for a specific feature, area or landscape by protecting, stabilizing, and repairing it on a routine or cyclic basis so that the historic character is not compromised or lost.

The history of the landscape at Weir Farm National Historic Site has been thoroughly researched and documented in *The Cultural Landscape Report for Weir Farm National Historic Site, Volume 1: Site History and Existing Conditions. Volume 2: Analysis and Treatment* analyzes the significance and outlines the appropriate treatment of the landscape in order to preserve and maintain the historic character of the property. Based on this extensive research and documentation, this *Preservation Maintenance Plan* serves to guide park managers in the maintenance of the cultural landscape and the perpetuation of the historic character.

This document is not comprehensive but rather focuses maintenance activities on priorities outlined by park staff (see Appendix E: Project Agreement in the Operations Manual and Maintenance Records binder) and the treatment priorities identified in the *Cultural Landscape Report Volume 2*. The Plan is organized into (2) three-ring binders to accommodate additional information gathered by park staff in future years. The first, Feature Inventory and Information Manual, is a site specific reference manual. This manual includes information for every type of tree, shrub, perennial and invasive plant found at Weir Farm including a description of the historic appearance or intent, preservation objectives and work procedures, and descriptive characteristics. The second, Operations Manual and Maintenance Records, documents the existing conditions in 1998, maintenance work required, and maintenance calendars to facilitate planning and carrying out cyclic maintenance tasks. In addition to updating the inventory and condition assessments with current yearly information, park staff is encouraged to add information about additional features as time and funding allow.

For the purposes of inventorying and collecting data on specific landscape features, the property was divided into three areas: Burlingham Complex, Weir Complex, and Pond & Woodland Area. Each of these areas was further divided into management zones to facilitate numbering and identifying individual trees and shrubs (see site maps in following section). A three-part numbering system was established. The first part indicates what area the plant is located in and whether it is a tree or shrub, the second part indicates what management zone a plant is in, and the third part is the chronological number given to each individual plant inventoried. For example, BT-1-10 refers to a tree in the Burlingham Complex (BT), located in management zone 1 (Domestic Grounds), and given the number 10 to identify it. The plant identification system used for Volume 2 of the CLR does not indicate where in each of the areas a plant is located. For example, B-T-10 in the CLR Volume 2 is clearly located in the Burlingham Complex but it is not clear where in the Burlingham Complex it can be found. A plant list cross-referencing the old plant identification numbers (from the CLR Volume 2) with the new numbers established for this *Preservation Maintenance Plan* can be found in Appendix F of the Operations Manual and Maintenance Records binder. The individual binders, their contents, and their intended use are described in more detail below.

Feature Inventory and Information Manual

The Feature Inventory and Information Manual is intended to be a site specific landscape reference manual. It contains information regarding the historic appearance or intent of specific landscape features. It also provides preservation objectives and work procedures aimed at stabilizing and protecting the individual landscape features which together embody the character of Weir Farm National Historic Site. In addition, the Feature Inventory and Information Manual contains a series of appendices which contain selected reference material to enable park staff to either perform work needed identified in this plan, or supervise work performed by an outside contractor.

The information in the Feature Inventory and Information Manual is divided according to three plant types- trees and shrubs, perennials, and invasives and pests. These sections are arranged alphabetically by the common name of each plant found on-site. It is recommended that other feature types such as walls, walks, and site furnishings be documented in this same manner and added to this binder in the future. If plant material is added or removed, or if more information is found or preservation objectives change, the feature data sheets in this binder should be amended accordingly.

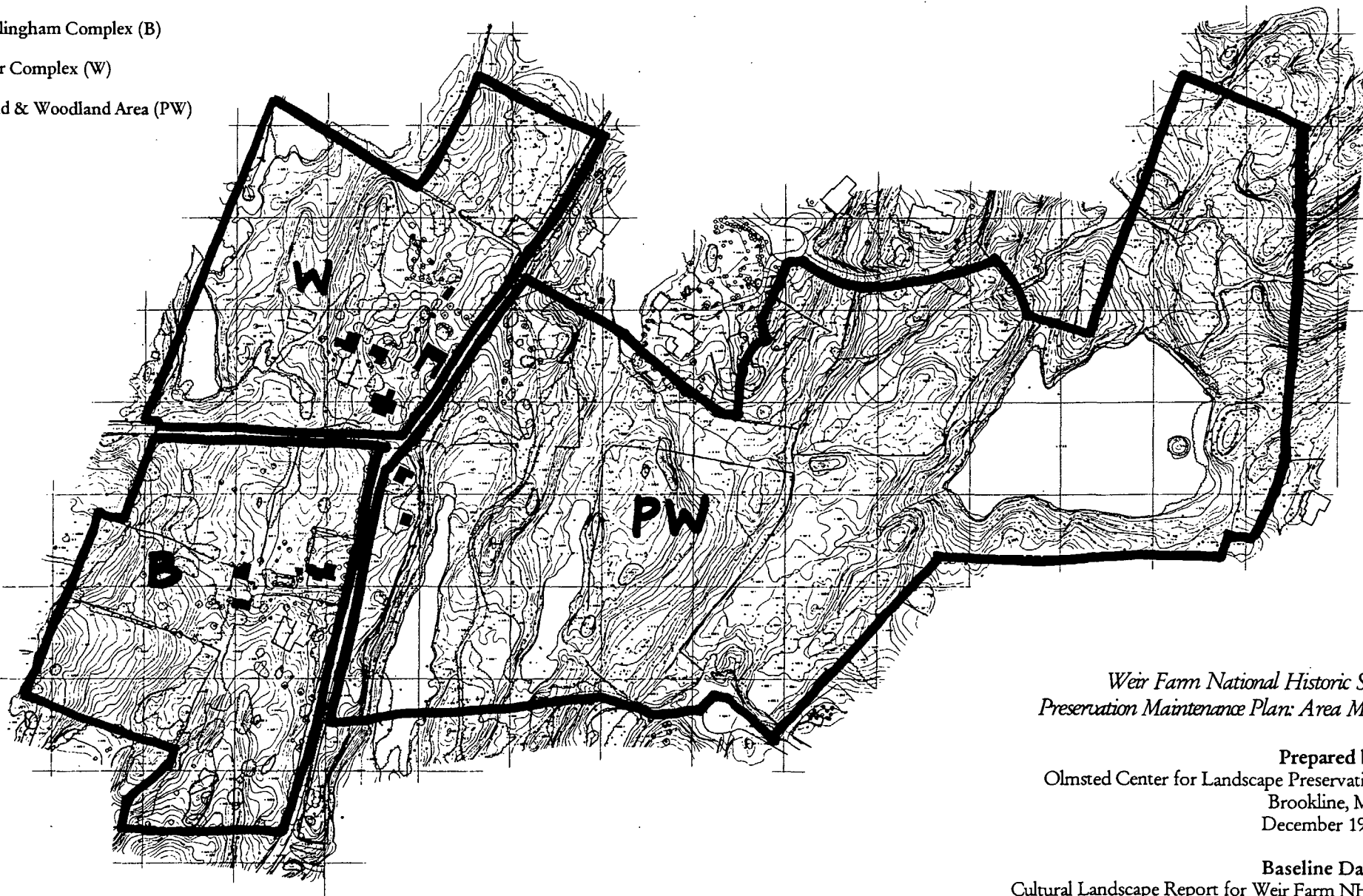
SITE MAPS &
MANAGEMENT
ZONES

Areas

Burlingham Complex (B)

Weir Complex (W)

Pond & Woodland Area (PW)



*Weir Farm National Historic Site
Preservation Maintenance Plan: Area Map*

Prepared by:
Olmsted Center for Landscape Preservation
Brookline, MA
December 1998

Baseline Data:
Cultural Landscape Report for Weir Farm NHS,
Volume 1: Site History and Existing Conditions
Exhibit 10
July 1995

Management Zones

Burlingham Complex

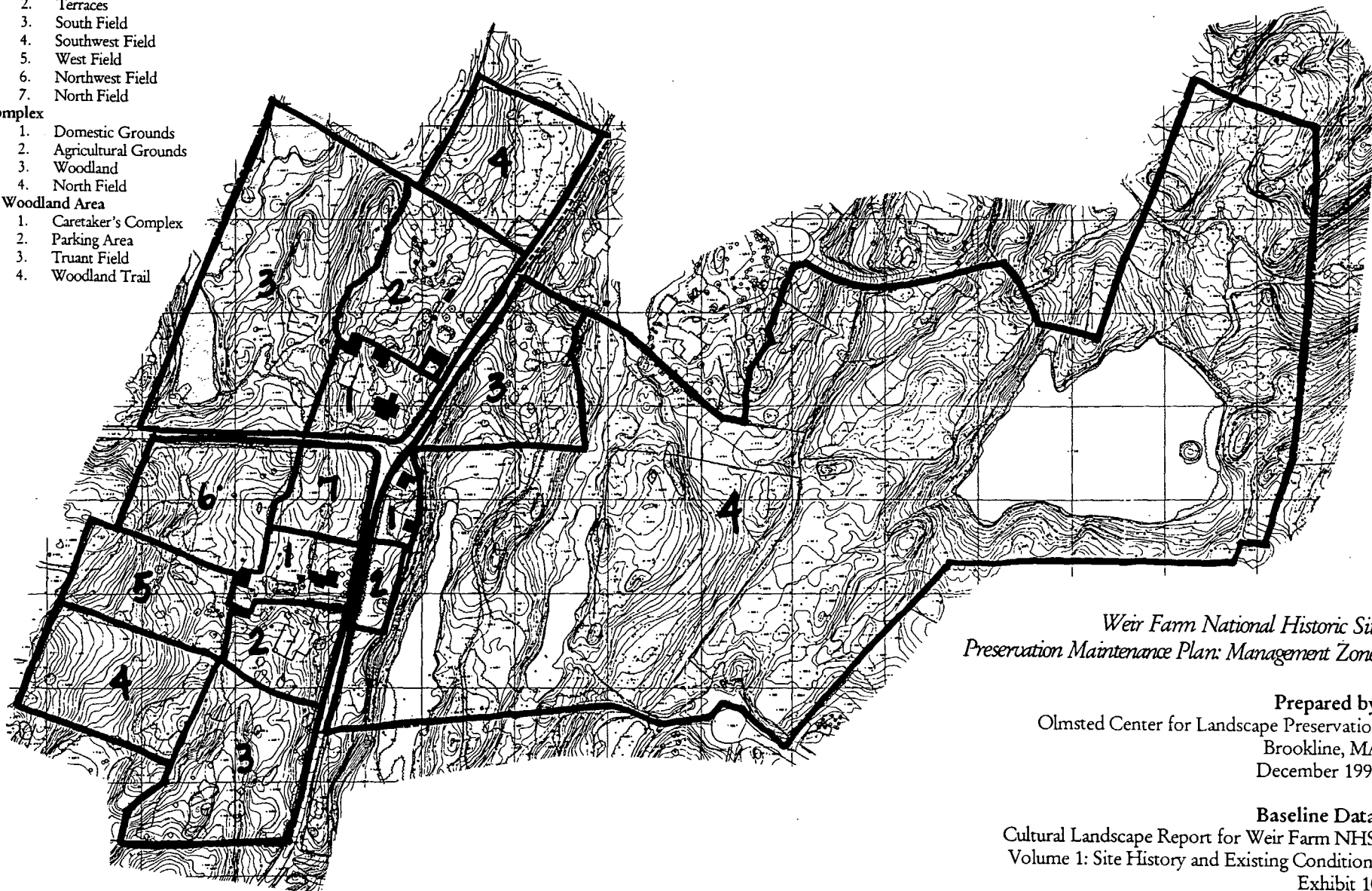
1. Domestic Grounds
2. Terraces
3. South Field
4. Southwest Field
5. West Field
6. Northwest Field
7. North Field

Weir Complex

1. Domestic Grounds
2. Agricultural Grounds
3. Woodland
4. North Field

Pond & Woodland Area

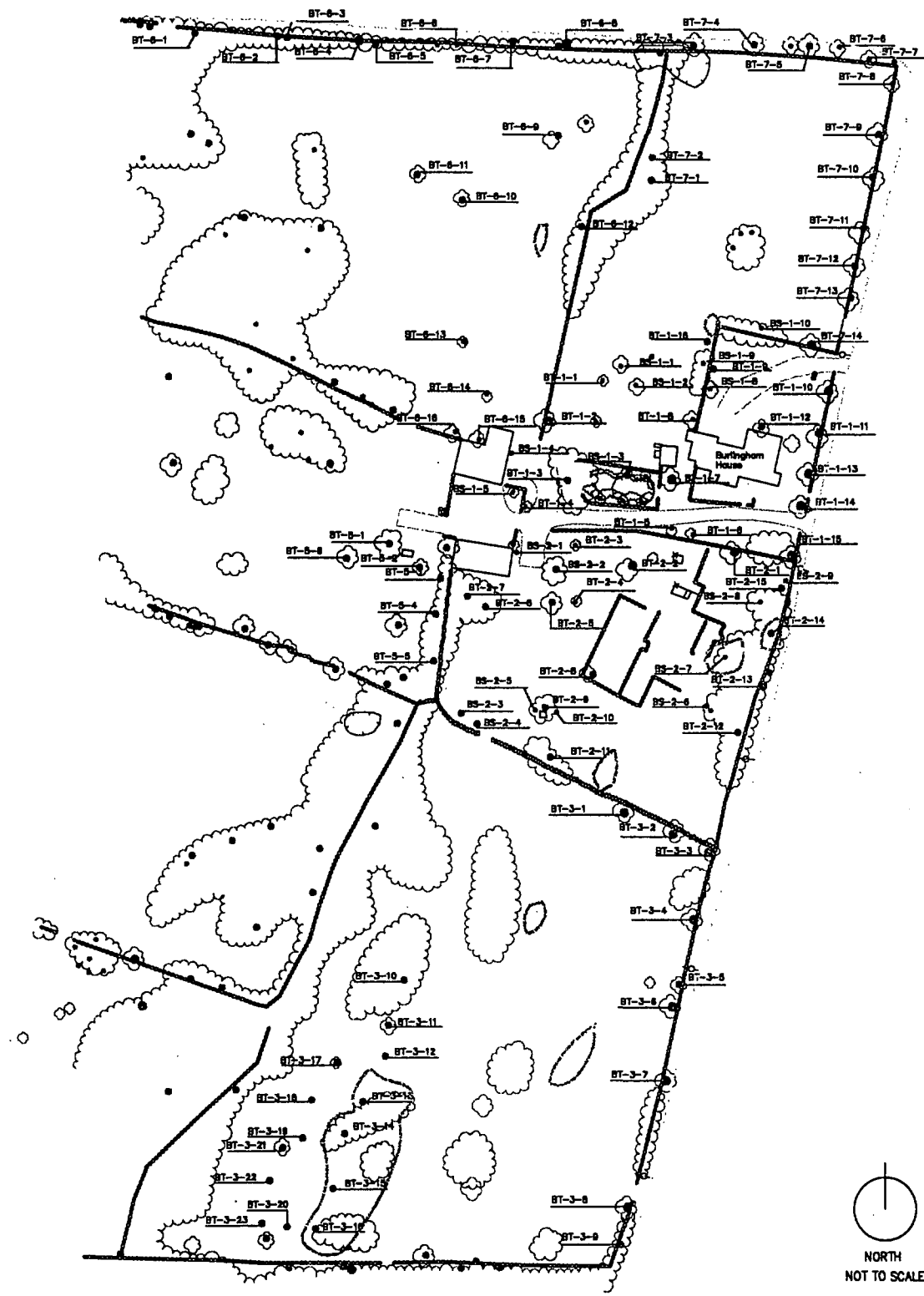
1. Caretaker's Complex
2. Parking Area
3. Truant Field
4. Woodland Trail



*Weir Farm National Historic Site
Preservation Maintenance Plan: Management Zones*

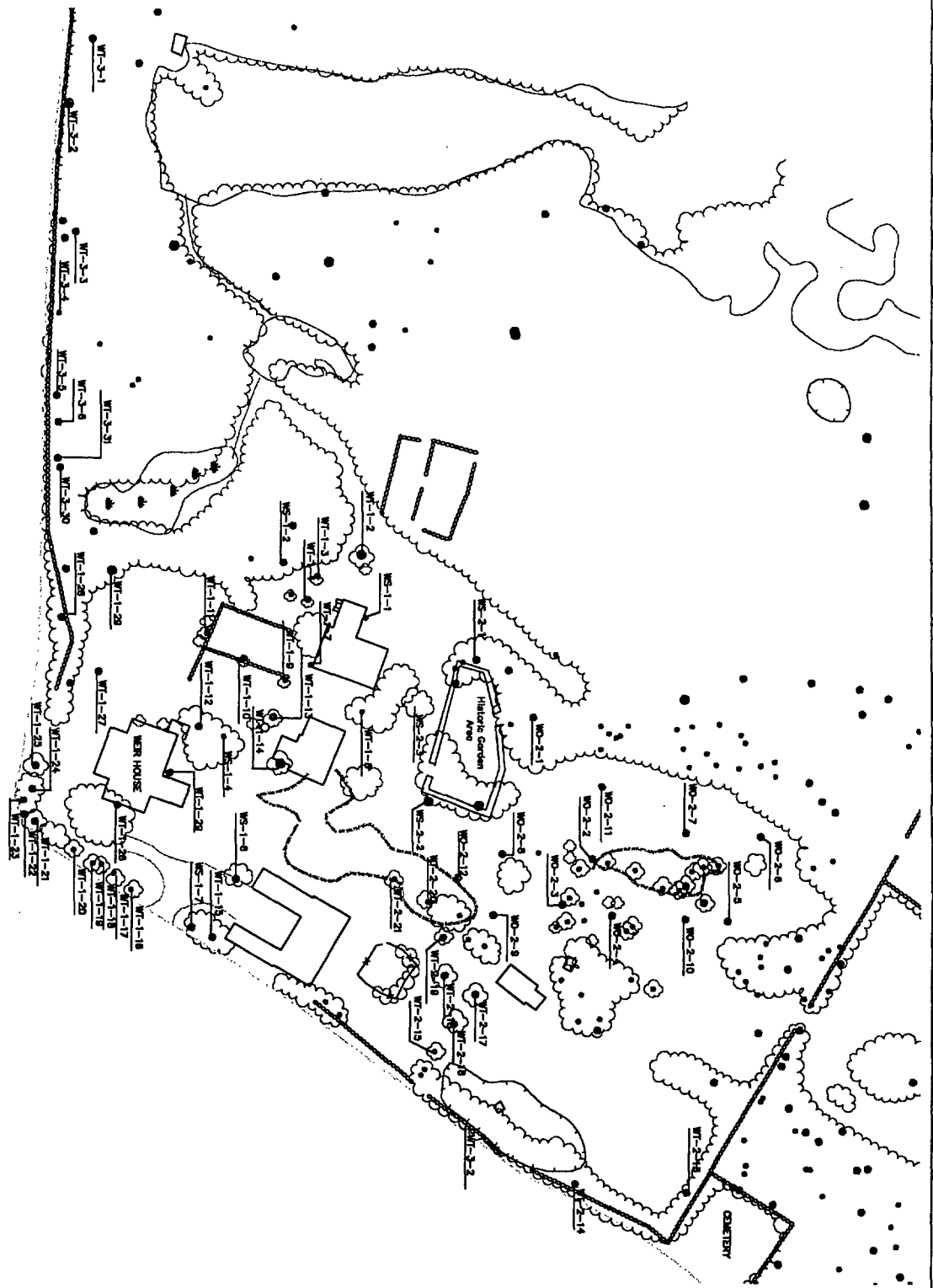
Prepared by:
Olmsted Center for Landscape Preservation
Brookline, MA
December 1998

Baseline Data:
Cultural Landscape Report for Weir Farm NHS,
Volume 1: Site History and Existing Conditions
Exhibit 10
July 1995



WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT PRESERVATION MAINTENANCE PLAN BURLINGHAM COMPLEX: TREES AND SHRUBS

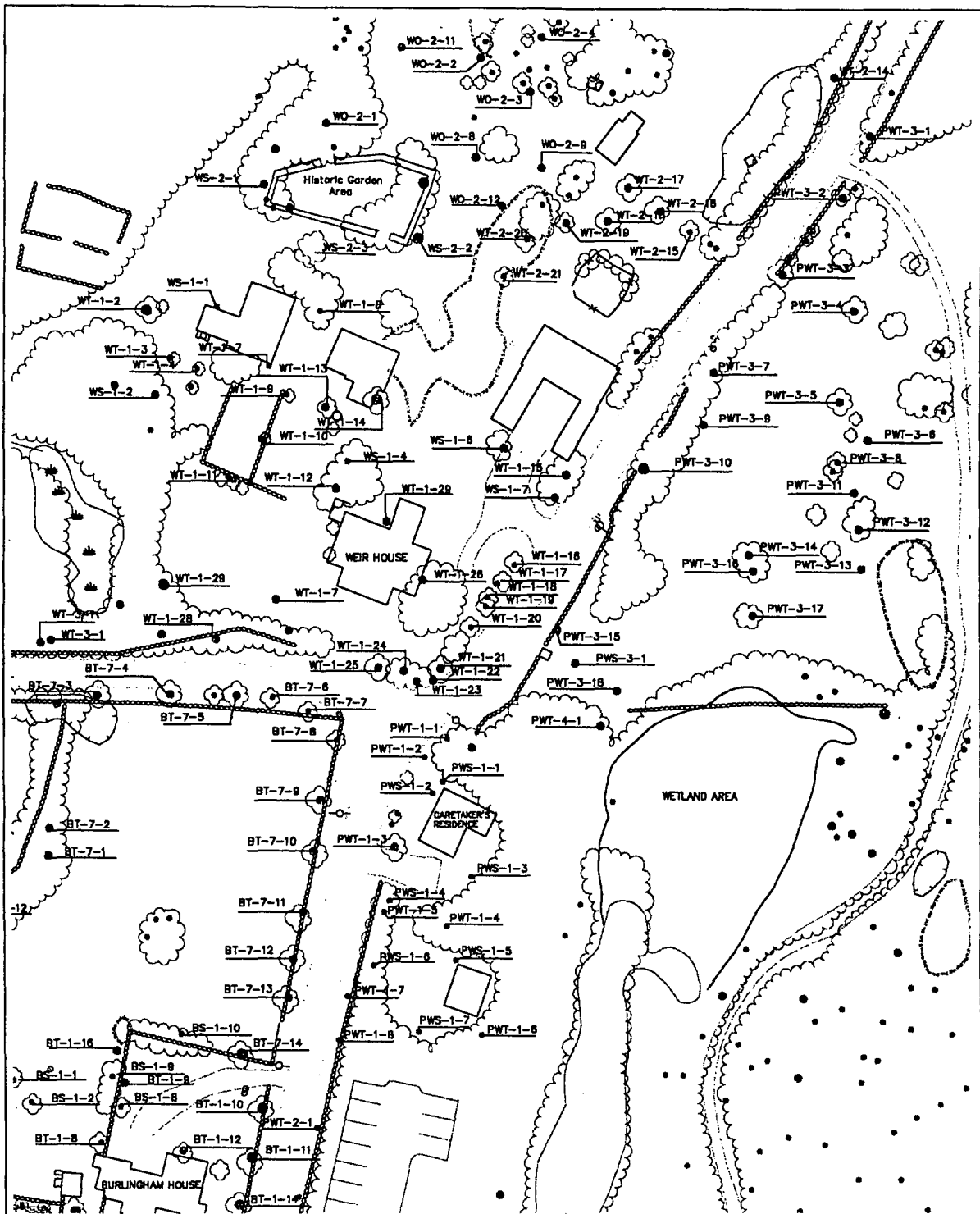
Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999



WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT
 PRESERVATION MAINTENANCE PLAN:
 WEIR COMPLEX TREES AND SHRUBS

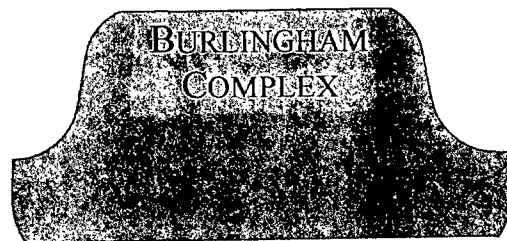
Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999



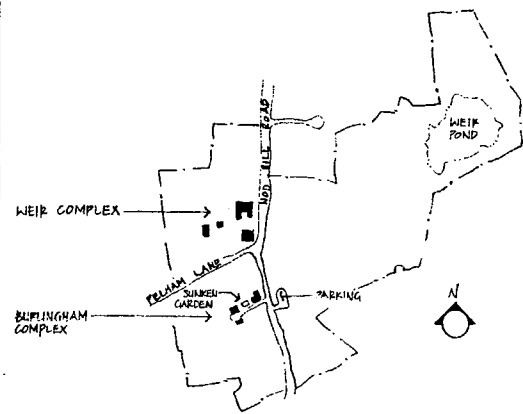


WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT
 PRESERVATION MAINTENANCE PLAN:
 POND AND WOODLAND AREA TREES AND SHRUBS

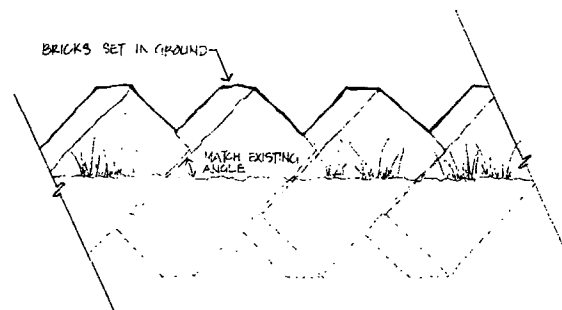
Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999



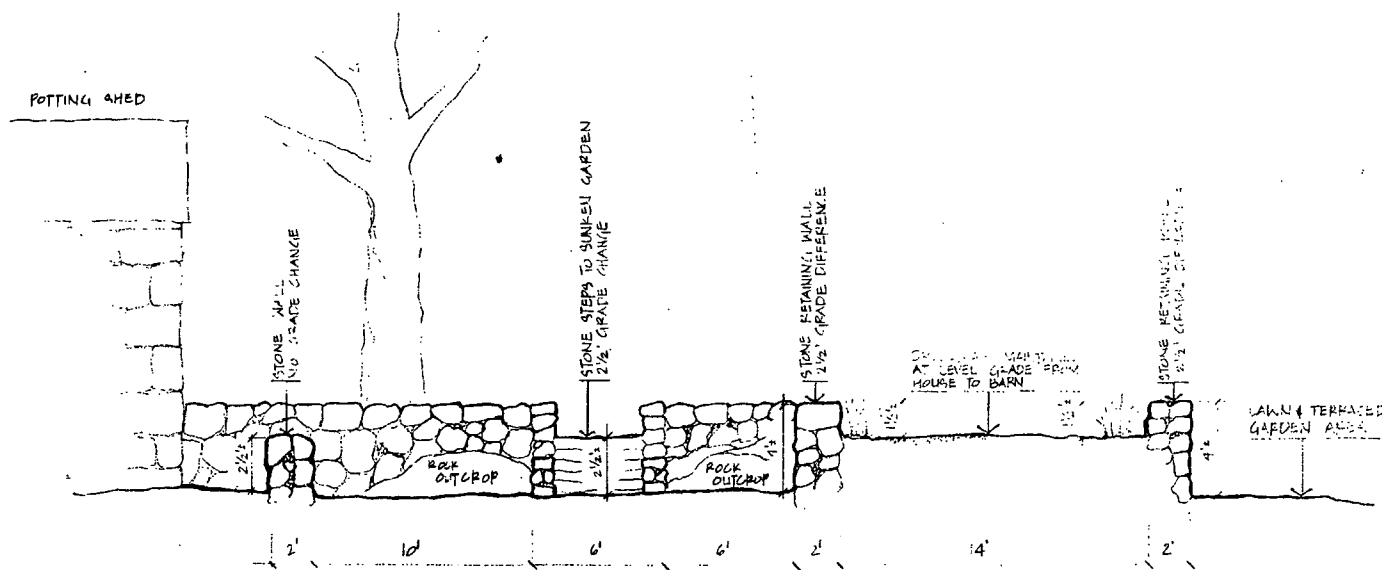
SUNKEN GARDEN



LOCATION DIAGRAM
NOT TO SCALE



DETAIL - EXISTING BRICK EDGE
SCALE: 1/4" = 1'

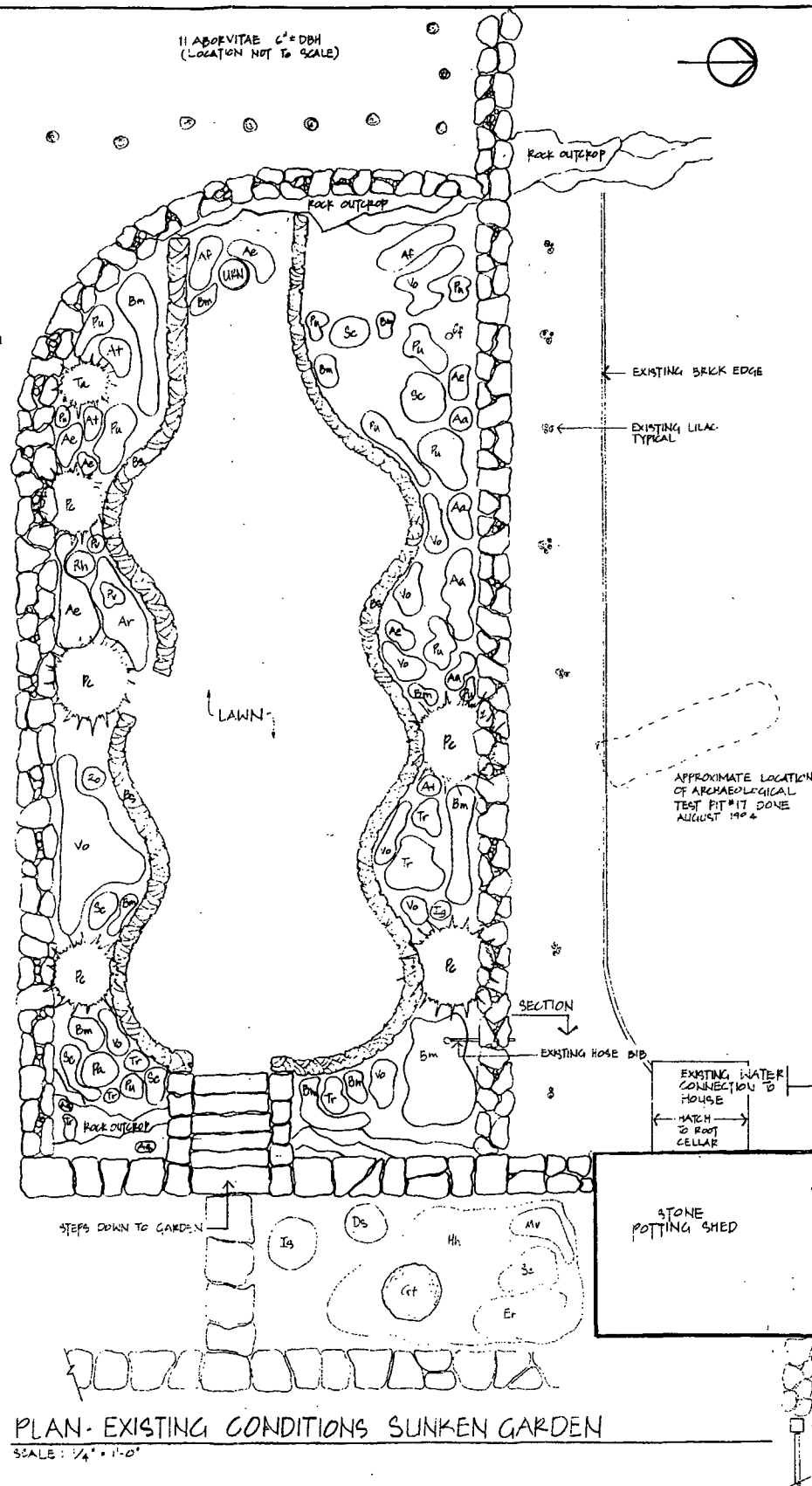


SECTION - SUNKEN GARDEN & DRIVEWAY
SCALE: 1/4" = 1'-0"

EXISTING PLANT LIST

Key	Botanical Name	Common Name	Comments
TREES AND SHRUBS			
Bs *	Buxus sempervirens	Boxwood	
Cf *	Cornus florida	Dogwood	
Pc *	Picea glauca albertiana 'conica'	Dwarf Alberta Spruce	
Rh *	Rhododendron 'Exbury hybrid'	Exbury Azalea	white with yellow center
Ro	Rosa	Rose	
Tx	Taxus	Yew	
PERENNIALS			
Ar	Ajuga reptans	Common Bugleweed	
Aq	Aquilegia canadensis	Wild Columbine	
At	Arisaema triphyllum	Jack-in-the-pulpit	
Ae	Asarum europaeum	European Ginger	
Aa *	Astilbe x arendsii	Astilbe	dark & light pink
Al	Athyrium filix-femina	Lady Fern	
Bm *	Brunnera macrophylla	Forget-me-not	
(shown as "Anchusa myosotidiflora" on Stage plan)			
Ig *	Iris germanica	Bearded Iris	dark blue (this plant bloomed in 1993, did not come up in 1996)
Pa *	Paeonia suffruticosa	Tree Peony	white
Pu	Pulmonaria saccharata	Pulmonaria 'Mrs Moon'	
Pv *	Primula vulgaris	Common Primrose	yellow
Sc	Sanquinaria canadensis	Bloodroot	
Tr	Tradescantia x andersoniana	Spiderwort	
Vo	Viola odorata	Violet	
BULBS			
Sc	Scilla siberica	Siberian Squill	
Na *	Narcissus	Narcissus	
Area above sunken garden in corner of potting shed			
TREES			
Gt	Gleditsia triacanthos	Honey Locust	
PERENNIALS			
Ds	Dicentra spectabilis	Bleeding-Heart	pink
Hh	Hedera helix	Ivy	ground cover and climbing up tree
Is	Iris sibirica	Siberian Iris	white
Mv	Mertensia virginica	Virginia Bluebells	blue
BULBS			
Er	Eranthis hyemalis	Winter Aconite	very early, yellow
Sc	Scilla siberica	Siberian Squill	blue

* Note: Asterisked items are shown on the Friede Stage 1969 Planting Plan



PLAN - EXISTING CONDITIONS SUNKEN GARDEN
SCALE: 1/4" = 1'-0"

SUNKEN GARDEN - BURLINGHAM COMPLEX WEIR FARM NATIONAL HISTORIC SITE			
EXISTING CONDITIONS	DRAWN BY NW	DATE 7/29/97	SHEET NO. L-1
NORMA E. WILLIAMS LANDSCAPE ARCHITECT 50 MADLINE DRIVE - RIDGEFIELD, CT 06371	CHECKED BY SCALE	REV.	

Weir Farm National Historic Site: Sunken Garden (Burlingham Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Date Completed	Year: Condition	Notes	Date Completed
Ana	Aster <i>Aster nova-angliae</i> "Purple Dome"	28		regularly apply deer repellent in summer deer browsed twice summer '98							
Abv	Astilbe <i>Astilbe</i> 'Bridal Veil'	3	fair	cut back after flowering, leave some flower spikes for winter protection							
Eas	Astilbe <i>Astilbe</i>	~9	good	cut back after flowering, leave some flower spikes for winter protection							
Aqh	Astilbe <i>Astilbe</i> x 'Queen of Holland'	18	good	cut back after flowering, leave some flower spikes for winter protection							
Asu	Astilbe <i>Astilbe chinensis</i> 'Superba'	20		cut back after flowering, leave some flower spikes for winter protection							
Ar	Astilbe <i>Astilbe</i> 'Rhineland'	3	fair	cut back after flowering, leave some flower spikes for winter protection							
Ib	Bearded Iris <i>Iris germanica</i> 'St. Loius Blues'	12	good	remove spent flowers monitor for borer							
IY	Bearded Iris <i>Iris</i> g. 'yellow'	12	good	cover with evergreen boughs for winter protection deer browsed - winter '98; verify variety							
Iw	Bearded Iris <i>Iris</i> g. 'white'	12	good	cover with evergreen boughs for winter protection deer browsed - winter '98; verify variety							
Ds	Bleeding Heart <i>Dicentra spectabilis</i>	2	good	foliage browns up early-remove							
Eds	Bleeding Heart <i>Dicentra spectabilis</i>	2	good	foliage browns up early-remove							
Df	Bleeding Heart <i>Dicentra formosa</i> 'Langtrees'	26	good	foliage browns up early-remove							

Weir Farm National Historic Site: Sunken Garden (Burlingham Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Date Completed	Year: Condition	Notes	Date Completed
Esc	Bloodroot <i>Sanguinaria canadensis</i>	~9	good	disappears by mid-summer							
Ebs	Boxwood <i>Buxus sempervirens</i>	hedge	good	maintain at 18" x 18" encourage new growth at thin areas							
Ch	Clematis <i>Clematis heracleifolia 'Davidiana'</i>	4	fair	spray regularly with deer repellant 1 replaced spring 98; rotted?							
Aq	Columbine <i>Aquilegia vulgaris</i>	22	good	cut back when brown							
Bgb	Columnar Box <i>Buxus sempervirens 'Fastigiata'</i>	6	good	wrap w/ burlap for winter protection, hand prune to retain shape. maintain at 6-8'							
Csb	Crocus <i>Crocus chrysanthus 'Snow Bunting'</i>	24	good	remove bulb foliage when ripened							
Ntr	Daffodil <i>Narcissus 'Tresamble'</i>	24	good	remove foliage when ripened							
Tc	Daffodil <i>Tulipa clusiana 'Cynthia'</i>	24	good	use repellant soap as flower spike emerges, remove foliage when ripened							
Ntc	Daffodil <i>Narcissus 'Tuesday's Child'</i>	48	good	remove foliage when ripened							
Nj	Daffodil <i>Narcissus 'Jack Snipe'</i>	48	good	remove foliage when ripened							
Nt	Daffodil <i>Narcissus 'Thalia'</i>	24	good	divide bulbs every 4 years, remove foliage when ripened							
Df	Dwarf Bleeding Heart <i>Dicentra formosa 'Langtrees'</i>	6	good	cut back in August							
Epv	English Primrose <i>Primula vulgaris</i>	~7	good	separate every 2 years							

Weir Farm National Historic Site: Sunken Garden (Burlingham Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Date Completed	Year: Condition	Notes	Date Completed
Pm	English Primrose <i>Primula v. 'Dreamer pastel mix'</i>	54	good	fish emulsion fertilizer; remove all foliage in late Sept to avoid leaf blight							
Eae	European Ginger <i>Asarum europeum</i>	~15	good	cover w/evergreens for winter protection							
Ae	European Ginger <i>Asarum europeum</i>	11	good	cover w/evergreens for winter protection 5 transplanted from bed east of potting shed							
ERh	Exbury Azalea <i>Rhododendron</i>	1	fair	protect from deer browsing, fertilize twice/yr w/organic fertilizer							
Ag	Flowering onion <i>Allium caeruleum</i>	12	good	easily mistaken for wild garlic and weeded out							
Tc	Foamflower <i>Tiarella wherryi</i>	18	good								
Ebm	Forget-Me-Not <i>Brunnera macrophylla</i>	~15		thin out yearly seeds readily-keep from spreading							
Dg	Foxglove <i>Digitalis grandiflora</i>	36	good	stake if necessary, remove spent flowers replace with larger flowered species							
Tr	Globeflower <i>Trollius x cultorum 'Lemon Queen'</i>	4	good								
Ad	Goatsbeard <i>Aruncus dioicus</i>	3	fair	protect from deer, leave flower spikes for winter interest							
Eat	Jack-in-the-pulpit <i>Arisaema triphyllum</i>	~6	good	protect when cultivating							
Pc	Jacob's Ladder <i>Polemonium caeruleum</i>	9	good								

Weir Farm National Historic Site: Sunken Garden (Burlingham Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Date Completed	Year: Condition	Notes	Date Completed
An	Japanese Painted Fern <i>Athyrium niponicum 'Pictum'</i>	2	good	1 donated							
Ho	Lenten Rose <i>Helleborus orientalis</i>	3	good	cover with evergreen boughs for winter protection deer browsed - winter '98							
Pjf	Lungwort <i>Pulmonaria saccharata 'Janet Fiske'</i>	6	good	keep watered some mildew summer '98							
Eps	Pulmonaria <i>Pulmonaria saccharata</i>	~12	good	powdery mildew summer '98							
Is	Siberian Iris <i>Iris sibirica 'Silver Edge'</i>	2	good								
Eis	Siberian Iris <i>Iris sibirica</i>	5	good								
Cm	Snakeroot <i>Cimicifuga racemosa var. cordifolia</i>	5	good	may require staking, leave spent flower spikes for winter interest							
Di	Sweet William <i>Dianthus barbatus 'Double Tall Mix'</i>	12	good	biennial							
Eps	Tree Peony <i>Paeonia suffruticosa</i>	1	fair	fish emulsion fertilizer; remove all foliage in late Sept to avoid leaf blight stake stems; give winter protection							
Plp	Tree Peony <i>Paeonia s. 'Peach Blossom Spring'</i>	1	good	fish emulsion fertilizer; remove all foliage in late Sept to avoid leaf blight monitor for borer							
Pdp	Tree Peony <i>Paeonia s. 'Yao's Yellow'</i>	1	good	remove all foliage in late Sept to avoid leaf blight monitor for borer							



Sunken Garden Quick Reference Calendar

[illegible]

Sunken Garden Quick Reference Calendar

[illegible]

Sunken Garden Monthly Calendar

January & February

- ❖ Apply soap shavings around garden bi-weekly
- ❖ Monitor fences and gates for deer intrusion

March

- ❖ Collect soil samples for testing
- ❖ Remove leaf accumulations from beds, along box hedge, and stonewalls (inside and out)
- ❖ Remove winter protection from boxwood plants
- ❖ Remove mulch from bases of tree peonies
- ❖ Monitor fences and gates for deer intrusion
- ❖ Apply organic fertilizer perennial beds
- ❖ Apply mulch layer as needed (every other year)
- ❖ Rake lawn to remove dead grass
- ❖ Apply lime to lawn according to soil test results

April

- ❖ Weekly weeding
- ❖ Inventory beds for replacement plants needed
- ❖ Divide perennial clumps as needed
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Apply lime to lawn according to soil test results
- ❖ Aerate compacted areas of lawn and re-seed bare patches
- ❖ Apply organic fertilizer to lawn (1 lb. N/1000 ft²)
- ❖ Spray deer repellent on daylilies south of garden (*Bobbex*)
- ❖ Monitor fences and gates for deer intrusion

May

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Edge beds
- ❖ Monitor fences and gates for deer intrusion
- ❖ Stake tree peonies
- ❖ Continue frequent weeding
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Deadhead lilacs after bloom (outside garden's north stonewall)
- ❖ Remove spent flowers of *Narcissus*
- ❖ Remove ripened bulb foliage

Sunken Garden Monthly Calendar

June

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Remove ripened bulb foliage
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Trim boxwood hedge to (15" ht x 15" wd)
- ❖ Trim fastigiate box (6-8')
- ❖ Stake perennials as needed: Digitalis
- ❖ Deadhead peonies

July

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Deadhead perennials as needed
- ❖ Deadhead daylilies south of garden
- ❖ Stake perennials as needed
- ❖ Monitor fences and gates for deer intrusion

August

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Deadhead perennials as needed
- ❖ Deadhead daylilies south of garden
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed

September

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Divide perennial clumps as needed
- ❖ Deadhead perennials as needed
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Apply organic fertilizer 1 pound nitrogen/1000 ft² to lawn

Sunken Garden Monthly Calendar

October

- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Aerate compacted areas of lawn and reseed bare spots
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed

November

- ❖ Remove leaf accumulations from beds and fencelines
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor pest/disease conditions
- ❖ Apply mulch layer as needed (every other year)
- ❖ Spray deer repellent on privet (*Bobbex*)
- ❖ Mulch tree peonies
- ❖ Wrap fastigate boxwood with burlap for winter protection

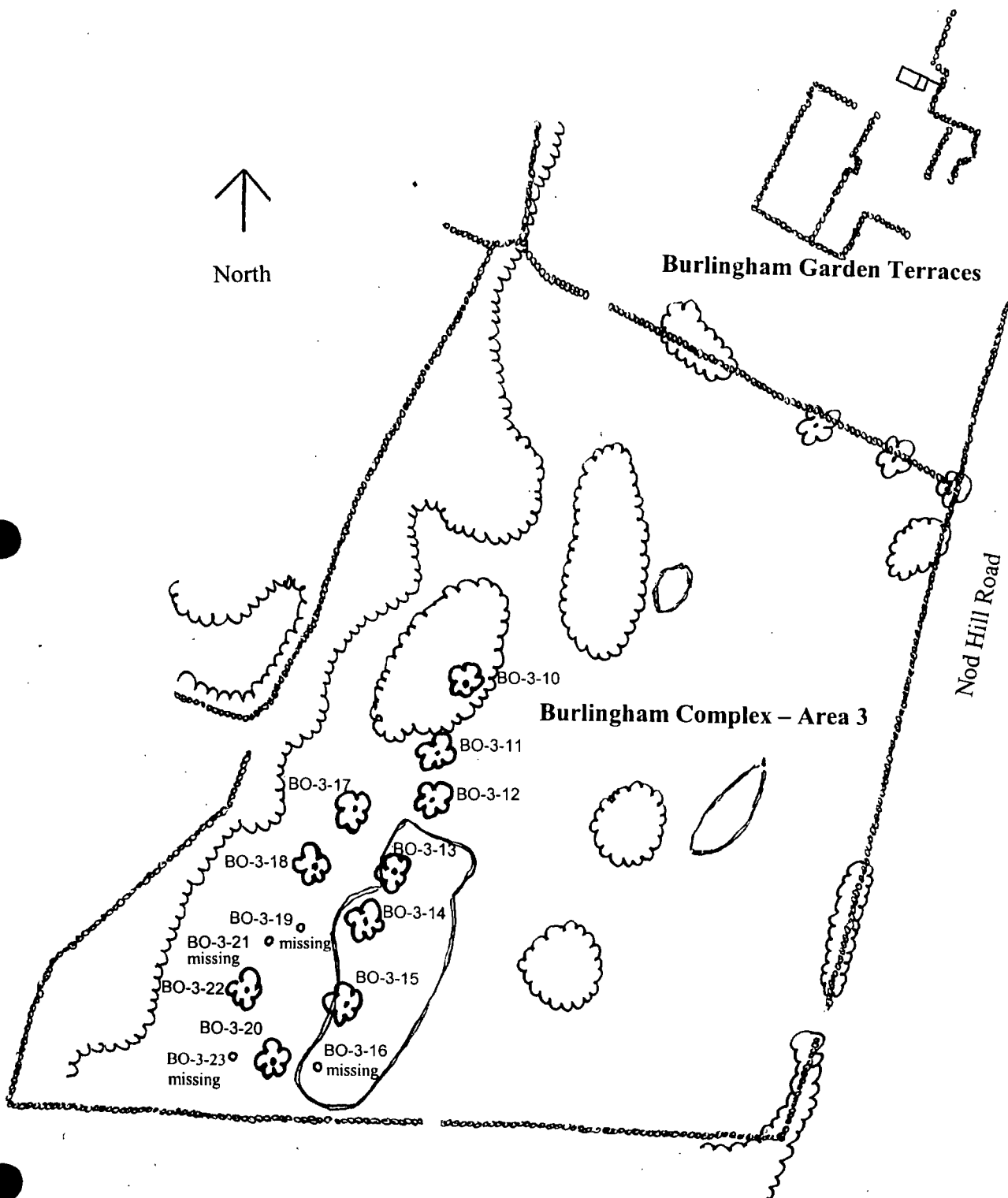
December

- ❖ Remove leaf accumulations from beds and fencelines
- ❖ Monitor fences and gates for deer intrusion
- ❖ Move urn into Burlingham barn for winter storage

ORCHARD
MAINTENANCE

Weir Farm National Historic Site
Preservation Maintenance Plan

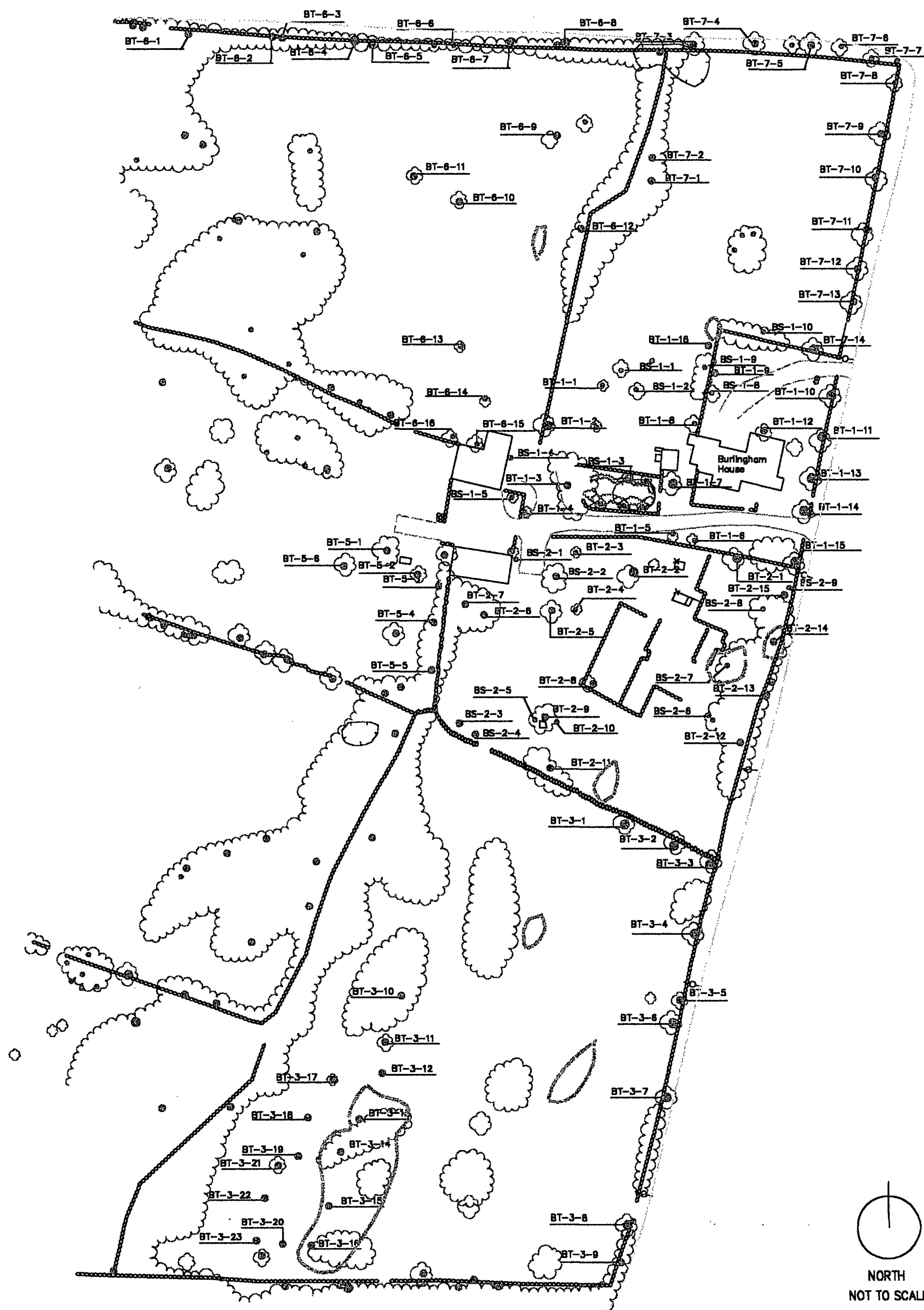
Burlingham Orchard Map



Weir Farm National Historic Site: Burlingham Complex 1998 Inventory, Condition Assessment and Work Needed: Orchard Trees

Field ID#	Scientific Name Common Name	1998 Condition	Cyclic Maintenance Notes	Replacement Record	Date Completed	Year Condition	Notes	Date Completed	Year Condition	Notes	Date Completed
BO-3 - 10	<i>Malus species</i> Apple	good	structural prune; remove adjacent sapplings no AA#	planted 4/98							
BO-3 - 11	<i>Malus species</i> Apple	fair	prune deadwood existing	replace in-kind							
BO-3 - 12	<i>Malus species</i> Apple	good	structural prune; remove adjacent sapplings AA#128-94	planted 4/98							
BO-3 - 13	<i>Malus species</i> Apple	poor	structural prune existing	replace in-kind							
BO-3 - 14	<i>Malus species</i> Apple	poor	structural prune existing	replace in-kind							
BO-3 - 15	<i>Malus species</i> Apple	very poor	remove and replace in-kind; structural prune new planting to train AA#127-94, WEFA 002	replace in-kind							
BO-3 - 16	<i>Malus species</i> Apple	missing	remove adjacent sapplings to allow light depression-poor drainage	replace in-kind							
BO-3 - 17	<i>Malus species</i> Apple	good	structural prune to train AA#129-94	planted 4/98							
BO-3 - 18	<i>Malus species</i> Apple	good	structural prune to train 124-94, WEFA 004	planted 4/98							
BO-3 - 19	<i>Malus species</i> Apple	missing	remove adjacent maple sappling depression-poor drainage	replace in-kind							
BO-3 - 20	<i>Malus species</i> Apple	good	structural prune; remove adjacent sapplings AA#127-94	planted 4/98							
BO-3 - 21	<i>Malus species</i> Apple	missing	remove stump large trunk left	replace in-kind							
BO-3 - 22	<i>Malus species</i> Apple	good	structural prune to train no AA#	planted 4/98							
BO-3 - 23	<i>Malus species</i> apple	missing	remove stump large trunk left	replace in kind							

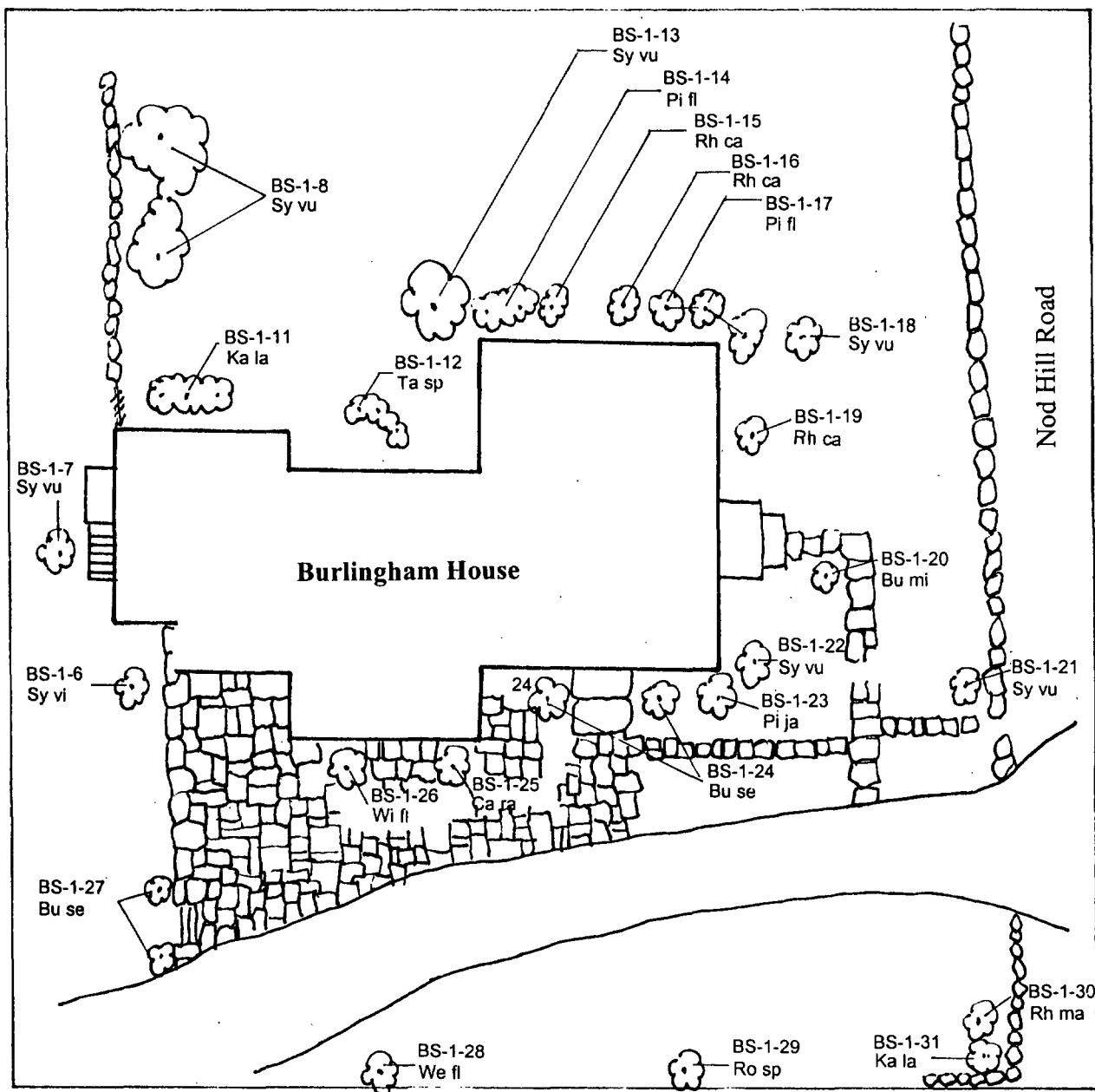
SPECIMEN TREE &
SHRUB
MAINTENANCE



WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT PRESERVATION MAINTENANCE PLAN BURLINGHAM COMPLEX: TREES AND SHRUBS

Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999

Burlingham House Foundation Plantings



Prepared by:
Olmsted Center for Landscape Preservation
Brookline, MA
December 1998

Baseline Data:
Cultural Landscape Report for Weir Farm NHS,
Volume 1: Site History and Existing Conditions
Exhibit 10
July 1995



1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

Weir Farm National Historic Site: Burlingham Complex
1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

Field ID#	Scientific Name Common Name	1998 Condition	Work Needed	Date Completed	Year Condition	Notes
BT-2 - 3	<i>Malus species</i> Apple		continue 3yr renovation; structural prune			
BT-2 - 4	<i>Pyrus species</i> Pear	poor condition				
BT-2 - 5	<i>Malus species</i> Apple	fair condition	continue 3yr renovation			
BT-2 - 6	<i>Ilex opaca</i> American holly	sprouting below graft union	remove low suckers; structural prune; thin canopy			
BT-2 - 7	<i>Ailanthus altissima</i> Tree of heaven					
BT-2 - 8	<i>Prunus subhirtella</i> Higan (weeping) cherry	major cavity and lesions at graft union at 5'	remove deadwood			
BT-2 - 9	<i>Fraxinus pennsylvanica</i> Green ash		remove deadwood, large base sucker, maple tree			
BT-2 - 10	<i>Acer saccharum</i> Sugar maple	one-sided because of adjoining ash	remove to make room for adjoining ash			
BT-2 - 11	<i>Malus species</i> Apple	prostate apple, lying on its side	structural prune			
BT-2 - 12	<i>Juniperus virginiana</i> Red cedar		remove seedling trees; clear forsythia below			
BT-2 - 13	<i>Carya ovata</i> Shagbark hickory		remove minor deadwood and branch over hanging wall			
BT-2 - 14	<i>Prunus species</i> Ornamental cherry	growing into electric lines	prune to eliminate conflict with electric lines			
BT-2 - 15	<i>Malus species</i> Crabapple	good condition	annual prune to develop open, vase-like structure			

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

Weir Farm National Historic Site: Burlingham Complex
1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

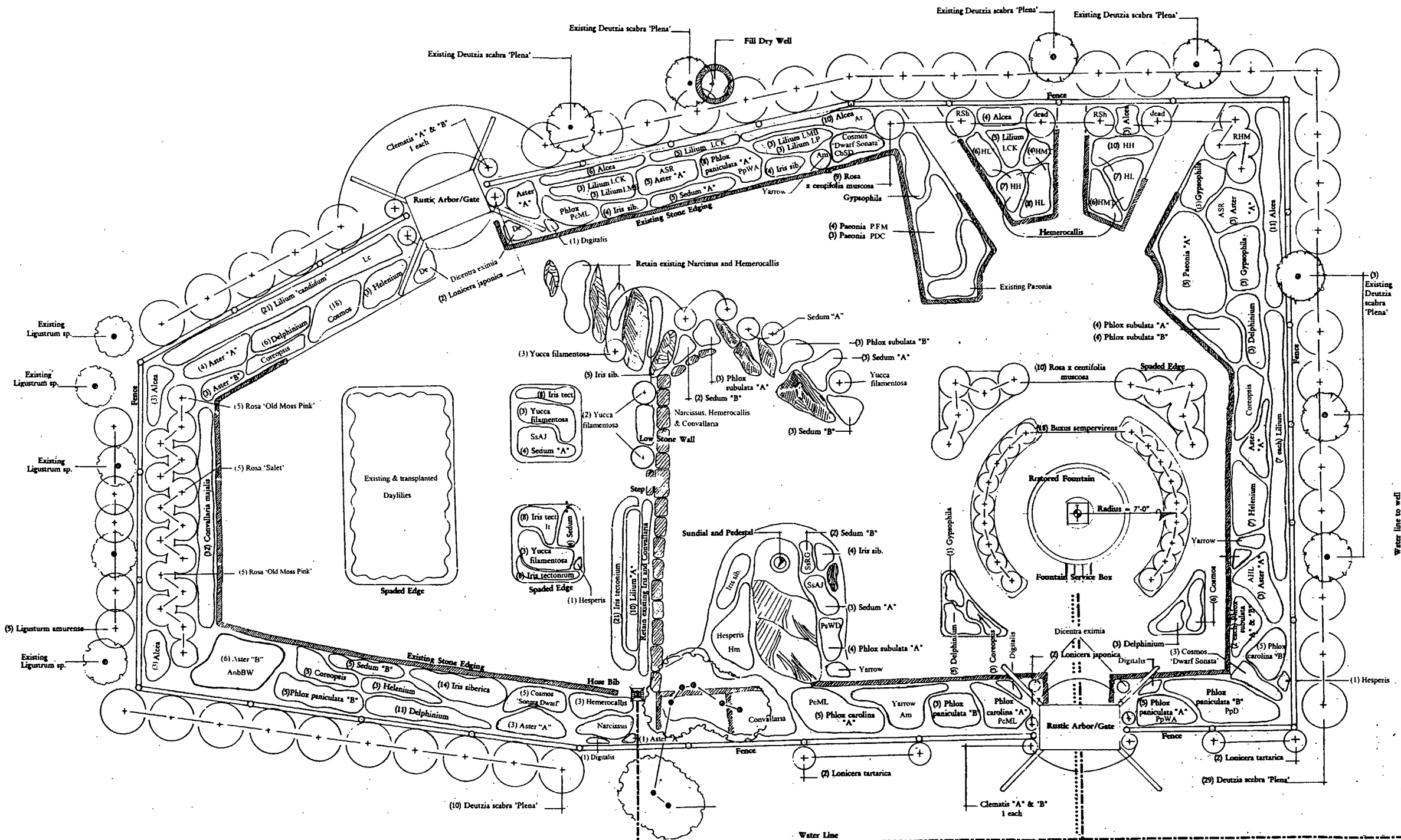
[illegible]

WEIR
COMPLEX

SECRET GARDEN

Scientific Name	Common Name	Map Code
-----------------	-------------	----------

Scientific Name	Common Name	Map Code
<i>Achillea millefolium</i>	Yarrow	Am
<i>Alcea rosea</i> 'Indian Spring'	Hollyhock	Ar
Aster A- novae-angliae 'Hella Lucy' 'Alma Pausche' 'September Ruby'	New England Aster	Ara AHL AnaAP ASR
B- novae-belgii 'Bonningdale White'	New York Aster	AnbBW
Clematis A- x Jackmani B- x Paniculata	Clematis Clematis	Cj Cp
<i>Convallaria majalis</i>	Lily-of-the-valley	Cm
<i>Coreopsis verticillata</i> 'Moonbeam'	Thread-leaf coreopsis	Cv
<i>Cosmos bipinnatus</i> 'Sonata Dwarf Mixed'	Dwarf Cosmos	ChSD
<i>Delphinium elatum</i> 'Connecticut Yankee'	Delphinium	DeCY
<i>Dicentra eximia</i>	Bleeding Heart	De
<i>Digitalis purpurea</i>	Foxglove	Dp
<i>Gypsophila paniculata</i> 'Bristol Fairy'	Baby's Breath	GpBF
<i>Gypsophila repens</i>	Creeping Baby's Breath	Gpr
<i>Helenium autumnale</i> 'Butterball' 'Butterpat'	Sneezeweed Sneezeweed	Ha HaB
<i>Hemerocallis</i> x 'Hyperion' 'Lemondrop' 'Mary Todd'	Daylily Daylily Daylily	HJH HL HMT
<i>Hesperis matronalis</i>	Dame's Rocket	Hm
<i>Iris sibirica</i>	Siberian Iris	Is
<i>Iris tectorum</i>	Japanese Roof Iris	It
<i>Lilium candidum</i>	Madonna Lily	Lc
<i>Lilium</i> x 'Connecticut King' 'Mont Blanc' 'Parisien'	Asiatic Lily Asiatic Lily Asiatic Lily	LCK LMB LP
<i>Lonicera japonica</i>	Honeysuckle	Lj
<i>Paeonia lactiflora</i> x A 'Festiva Maxima' B 'Doris Cooper'	Peony Peony	PFM PDC
<i>Phlox paniculata</i> A 'White Admiral' B 'David'	Summer Phlox Summer Phlox	PpWA PpD
<i>Phlox carolina</i> A 'Miss Lingard' B 'Roselinde'	Phlox Phlox	PcML PcR
<i>Phlox subulata</i> A 'White Delight' B 'Blue Emerald'	Mountain Pinks Mountain Pinks	PcWD PcBE
<i>Rosa x centifolia muscosa</i> 'Old Moss Pink' 'Salem' 'White Shaler' 'Henri Martin' 'Dresden Doll'	Pink Moss Rose White Moss Rose Red Moss Rose	ROM Rsa RSh RHM DD
<i>Sedum spectabile</i> A- 'Autumn Joy' B- 'Ruby Glow'	Sedum Sedum	SsAJ SSRG
<i>Sedum spaurium</i> 'Tricolor'	Sedum	SsT
<i>Yucca filamentosa</i>	Yucca	Yf



OLMSTED CENTER
FOR
LANDSCAPE PRESERVATION



NATIONAL PARK SERVICE

Weir Farm National Historic Site
PRESERVATION MAINTENANCE PLAN
WEIR COMPLEX: SECRET GARDEN
January 1999

Baseline Data:

Cultural Landscape Report for
Weir Farm National Historic Site
Volume II: Analysis and Treatment

Scale: 1/4" = 1'



Weir Farm National Historic Site: Secret Garden (Weir Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Year: Condition	Notes	Date Completed
LP	Asiatic lily <i>Lilium x 'Parisien'</i>	10								
LMB	Asiatic lily <i>Lilium x 'Mont Blanc'</i>	13								
LCK	Asiatic lily <i>Lilium x 'Connecticut King'</i>	30								
ASR	Aster <i>Aster 'September Ruby'</i>	3								
GpBF	Baby's- breath <i>Gypsophila paniculata 'Bristol Fairy'</i>	10	fair	several plants failed to overwinter 1997-98						
De	Bleeding heart <i>Dicentra eximia</i>	4	good							
Bs	Boxwood <i>Buxus sempervirens</i>	18		maintain as 1' x 1' globes prune in June						
Cj	Clematis <i>Clematis x Jackmani</i>	2		protect roots						
Cp	Clematis <i>Clematis paniculata</i>	2		protect roots						
Gpr	Creeping baby's- breath <i>Gypsophila repens</i>	2								
Hm	Dame's rocket <i>Hesperis matronalis</i>	10	good	thin out to prevent taking over						
HL	Daylily <i>Hemerocallis x 'Lemondrop'</i>	21	good	remove spent flowers and flower spikes						
HMT	Daylily <i>Hemerocallis x 'Mary Todd'</i>	10	good							
HH	Daylily <i>Hemerocallis x 'Hyperion'</i>	17	good	remove spent flowers & spikes						
DeCY	Delphinium <i>Delphinium elatum 'Connecticut Yankee'</i>	29	good	stake and cut back for re-flowering						

Weir Farm National Historic Site: Secret Garden (Weir Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Year: Condition	Notes	Date Completed
CbSD	Dwarf Cosmos <i>Cosmos bipinnatus</i> 'Sonata Dwarf Mixed'	35	good	cut back spent blooms raised from seed by Ridgefield Garden Club						
Dp	Foxglove <i>Digitalis purpurea</i>	7	good	biennial, thin out seedlings						
Ar	Hollyhock <i>Alcea rosea</i> 'Indian Spring'	42		require staking, cut out old flower spikes before plan on replacing each year						
Lj	Honeysuckle <i>Lonicera japonica</i>	4								
It	Japanese roof Iris <i>Iris tectorum</i>	54		monitor for Iris borer						
Cm	Lily-of-the-Valley <i>Convallaria majalis</i>	32								
Lc	Madonna lily <i>Lilium candidum</i>	21		use lime to raise pH, cut back spent flower spikes						
PsBE	Mountain pinks <i>Phlox subulata</i> 'Blue Emerald'	9								
PsWD	Mountain pinks <i>Phlox subulata</i> 'White Delight'	13		evaluate for division fall '98						
Ana	New England aster <i>Aster novae-angliae</i>	6								
AHL	New England aster <i>Aster</i> 'Hella Lacy'	4								
Ana AP	New England Aster <i>Aster novae-angliae</i> 'Alma Patasche'	3								
Anb BW	New York aster <i>Aster novae-belgii</i> 'Bonningdale White'	7	good	may require staking						
PDC	Peony <i>Paeonia lactiflora</i> 'Doris Cooper'	3								
PFM	Peony <i>Paeonia lactiflora</i> 'Festiva Maxima'	9		divide every three years in September, remove and replant evaluate for division in fall '98						

Weir Farm National Historic Site: Secret Garden (Weir Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Year: Condition	Notes	Date Completed
PcML	Phlox <i>Phlox carolina</i> 'Miss Lingard'	16								
PcR	Phlox <i>Phlox carolina</i> 'Rosalinde'	5								
ROM	Pink moss rose <i>Rosa x centrifolia muscosa</i> 'Old Moss Pink'	10	poor	Japanese beetle, black spot & rust control evaluate use of Neem						
RHM	Red moss rose <i>Rosa x centrifolia muscosa</i> 'Henri Martin'	4	good							
RSh	Rose <i>Rosa x centrifolia muscosa</i> 'White Shaler'	2	fair	prune in spring						
DD	Rose <i>Rosa</i> 'Dresden Doll'	8	good							
SsAJ	Sedum <i>Sedum spectabile</i> 'Autumn Joy'	24	good	cut back in late winter leave foliage for winter interest						
SsRG	Sedum <i>Sedum spectabile</i> 'Ruby Glow'	12	good	cut back in late winter leave foliage for winter interest						
SsT	Sedum <i>Sedum spurium</i> 'Tricolor'	2	good	protect from excess water						
Is	Siberian Iris <i>Iris siberica</i>	31								
Ha	Sneezeweed <i>Helenium autumnale</i> 'Butterball'	3		stake in August						
HaB	Sneezeweed <i>Helenium autumnale</i> 'Sunball'	10		stake in August						
PpD	Summer Phlox <i>Phlox paniculata</i> 'David'	16								
PpWA	Summer Phlox <i>Phlox paniculata</i> 'White Admiral'	13								
Cv	Thread-leaf Coreopsis <i>Coreopsis verticillata</i> 'Moonbeam'	11		divide in spring '99						

Weir Farm National Historic Site: Secret Garden (Weir Complex)
1998 Inventory, Condition Assessment and Work Needed: Woody Shrubs and Perennials

Map Code	Common Name Scientific Name	# of Plants	1998 Condition	Cyclic Maintenance Required Notes	Date Completed	Year: Condition	Notes	Year: Condition	Notes	Date Completed
Rsa	White moss rose <i>Rosa x centifolia muscosa 'Salet'</i>	5	poor	Japanese beetle, black spot & rust control evaluate use of Neem						
Am	Yarrow <i>Achillea millefolium</i>	12	good	thin out periodically reduce size of mass west of south gate - spring '99						
Yf	Yucca <i>Yucca filamentosa</i>	11	good	divide every three years, leave some flower spikes						



Weir Farm National Historic Site
Secret Garden Quick Reference Calendar

[illegible]

Secret Garden Quick Reference Calendar

[illegible]

Secret Garden Monthly Calendar

January & February

- ❖ Monitor fences and gates for deer intrusion

March

- ❖ Collect soil samples for testing
- ❖ Remove leaf accumulations from beds, along box hedge, and stonewalls (inside and out)
- ❖ Remove winter protection from boxwood plants
- ❖ Monitor fences and gates for deer intrusion
- ❖ Apply organic fertilizer perennial beds
- ❖ Apply mulch layer as needed (every other year)
- ❖ Rake lawn to remove dead grass
- ❖ Apply lime to lawn according to soil test results
- ❖ Cut back *Sedum* left for winter interest
- ❖ Remove mulch from bases of rose bushes
- ❖ Start seed for annual plantings (*Cosmos*, *Antirrhinum*)

April

- ❖ Weekly weeding
- ❖ Inventory beds for replacement plants needed
- ❖ Divide perennial clumps as needed
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Cut back roses; remove oldest canes and encourage young growth
- ❖ Apply lime to lawn according to soil test results
- ❖ Aerate compacted areas of lawn and re-seed bare patches
- ❖ Apply organic fertilizer to lawn (1 lb. N/1000 ft²)
- ❖ Monitor fences and gates for deer intrusion

May

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Edge beds
- ❖ Monitor fences and gates for deer intrusion
- ❖ Stake tree peonies
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Deadhead lilacs after bloom (inside and outside garden's south side)
- ❖ Remove spent flowers of *Narcissus* (at southeast corner outside fence)
- ❖ Remove ripened bulb foliage
- ❖ Re-install fountain piping and pump and turn on breaker and water (see SOP in Secret Garden file)
- ❖ Plant annual plants for colorful fillers

Weir Farm National Historic Site

Preservation Maintenance Plan

Secret Garden Monthly Calendar

June

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Remove ripened bulb foliage
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Trim boxwood around fountain (12" ht x 12' wd)
- ❖ Trim privet hedge (4' ht)
- ❖ Stake perennials as needed (*Delphinium*, *Asters*)
- ❖ Deadhead peonies

July

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Deadhead perennials as needed (*Daylilies*, *Delphinium*, *Lilies*)
- ❖ Stake perennials as needed (*Delphinium*, *Asters*)
- ❖ Monitor fences and gates for deer intrusion

August

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Deadhead perennials as needed
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed

September

- ❖ Weekly weeding
- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Divide peonies
- ❖ Deadhead perennials as needed (*Phlox*)
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Apply organic fertilizer 1 pound nitrogen/1000 ft² to lawn

Secret Garden Monthly Calendar

October

- ❖ Weekly mowing and bi-weekly edge trimming
- ❖ Aerate compacted areas of lawn and reseed bare spots
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor soil moisture and pest/disease conditions
- ❖ Water beds and turf as needed
- ❖ Dismantle fountain piping and turn off water supply (See SOP in Secret Garden file)
- ❖ Cut back all perennials already flowered to 3-4" above ground

November

- ❖ Remove leaf accumulations from beds and fencelines
- ❖ Monitor fences and gates for deer intrusion
- ❖ Monitor pest/disease conditions
- ❖ Apply mulch layer as needed (every other year)
- ❖ Spray deer repellent on privet (*Bobbex*)
- ❖ Mulch rose bushes at base as needed

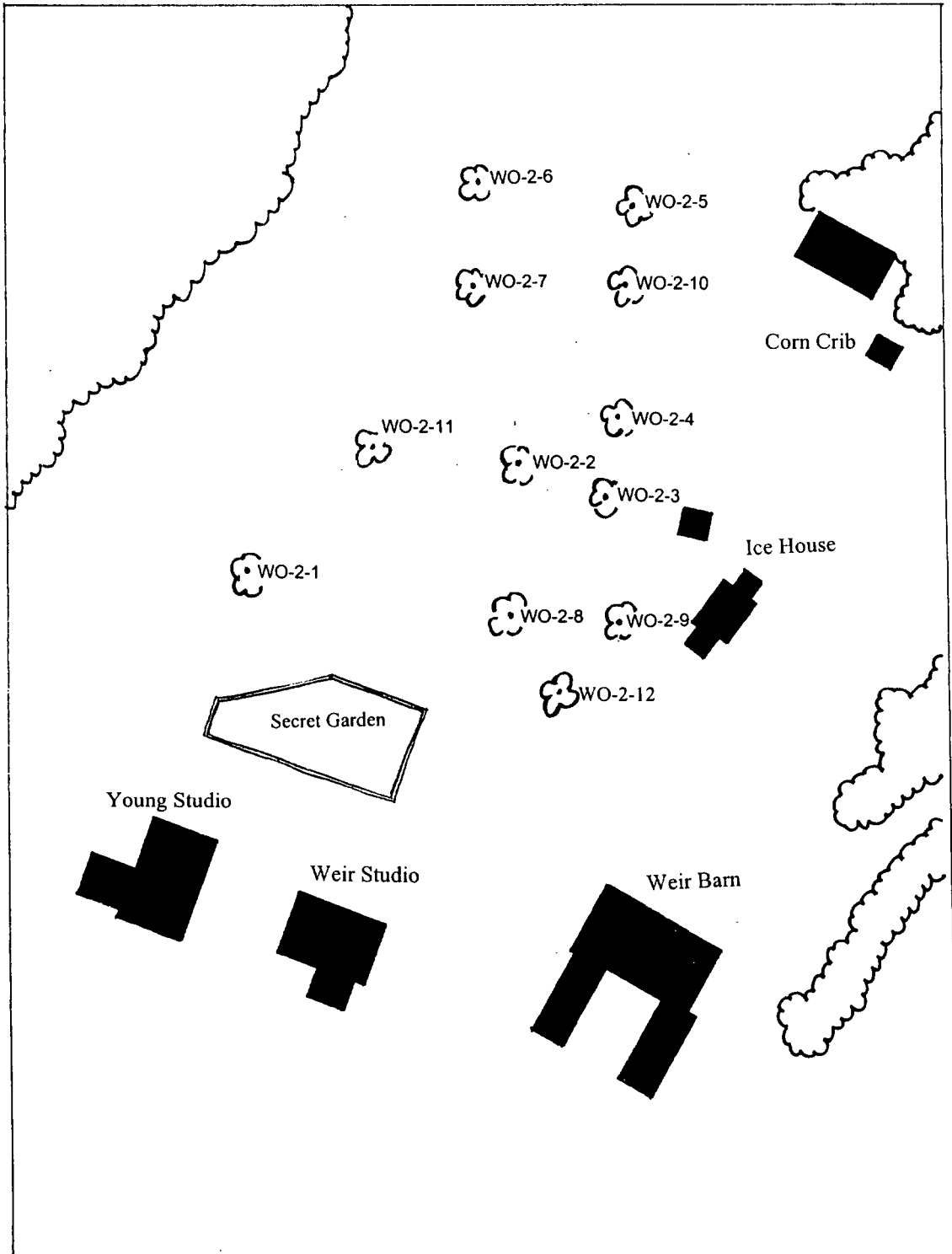
December

- ❖ Remove leaf accumulations from beds and fencelines
- ❖ Monitor fences and gates for deer intrusion

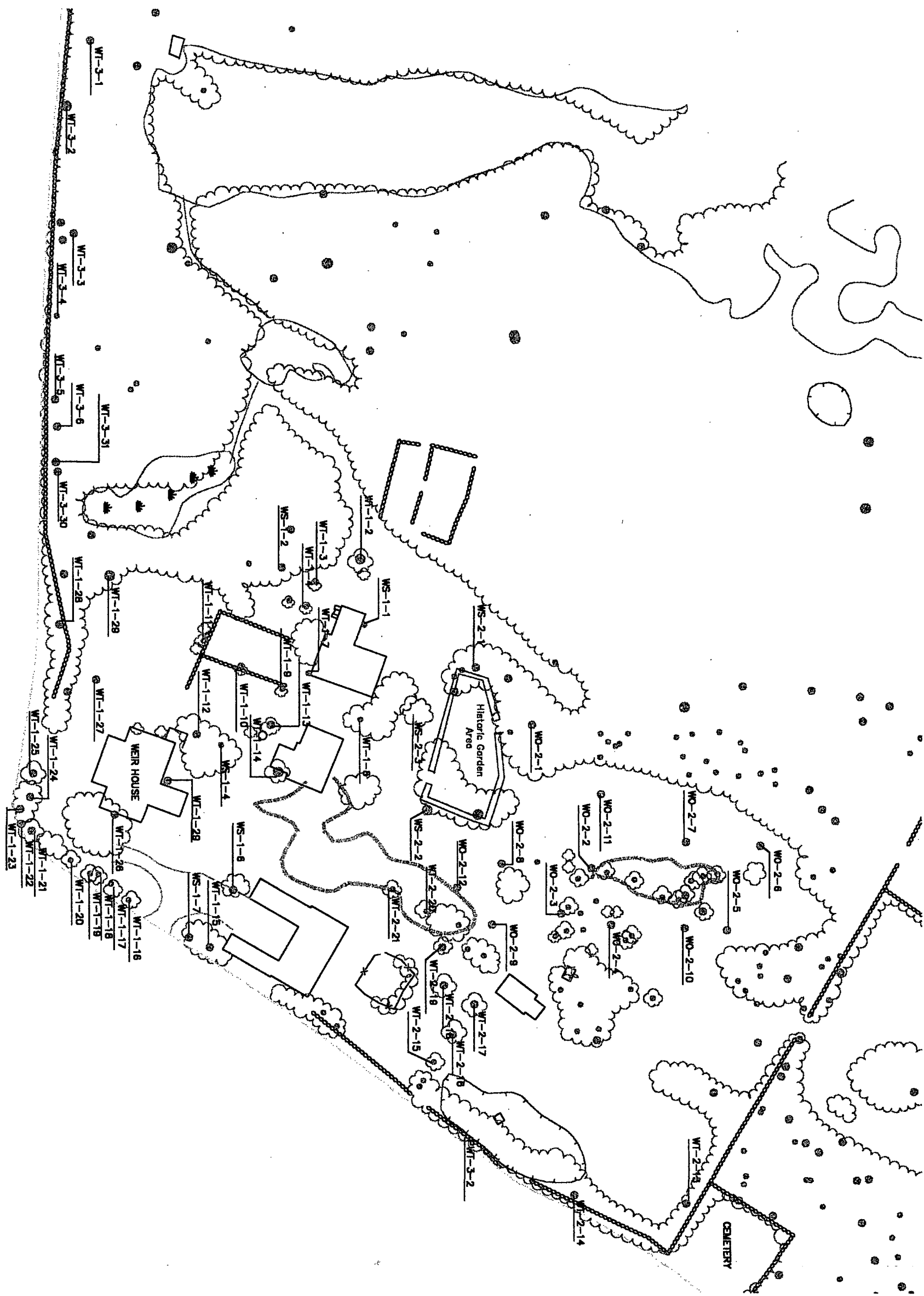
ORCHARD
MAINTENANCE.

Weir Farm National Historic Site
Preservation Maintenance Plan

Weir Orchard Map



SPECIMEN
TREE & SHRUB
MAINTENANCE



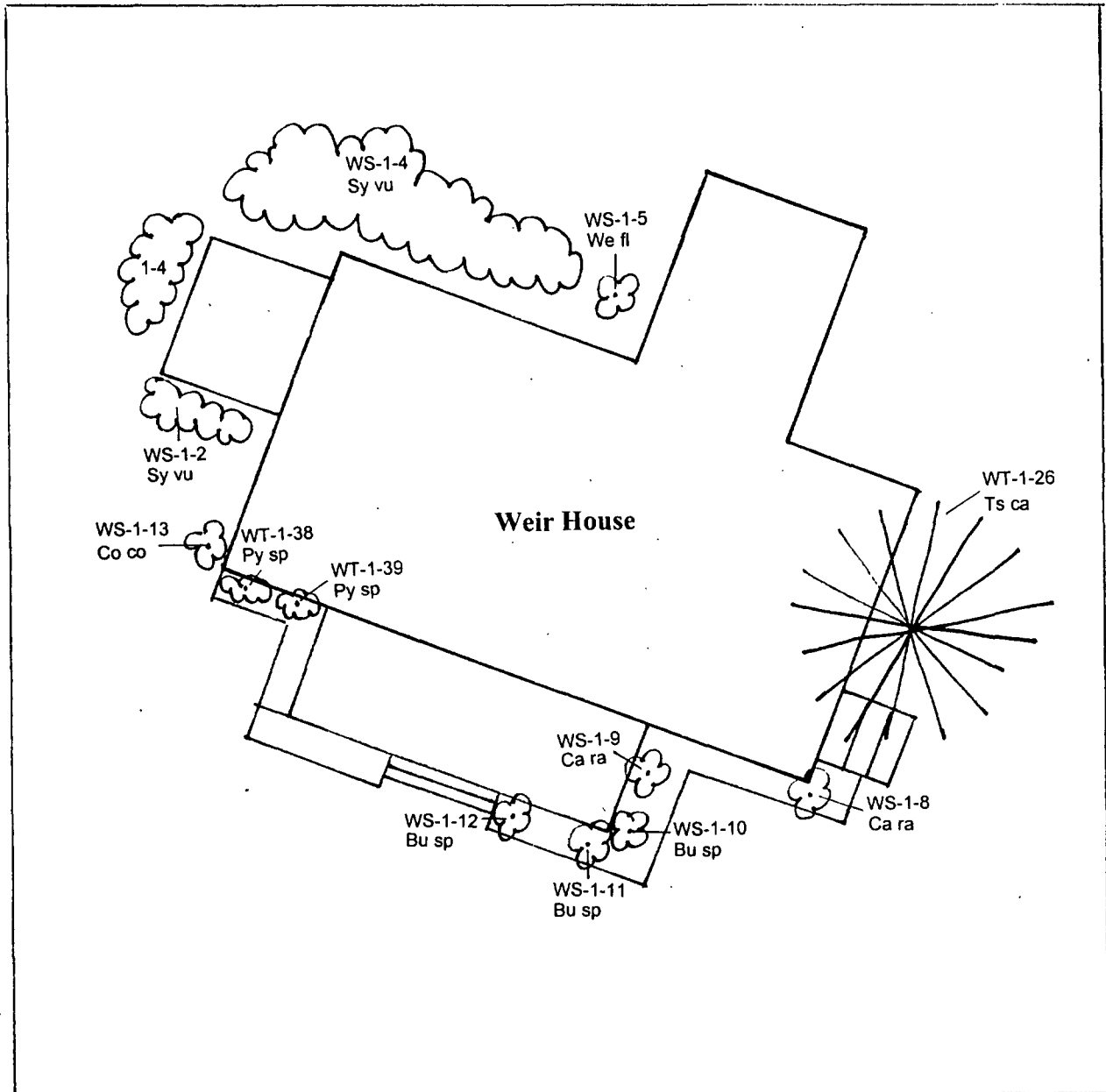
WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT
 PRESERVATION MAINTENANCE PLAN:
 WEIR COMPLEX TREES AND SHRUBS

Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999



Weir Farm National Historic Site
Preservation Maintenance Plan

Weir House Foundation Plantings



Prepared by:
Olmsted Center for Landscape Preservation
Brookline, MA
December 1998

Baseline Data:
Cultural Landscape Report for Weir Farm NHS,
Volume 1: Site History and Existing Conditions
Exhibit 10
July 1995

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

[illegible]

Weir Farm National Historic Site: Weir Complex

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

[illegible]

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

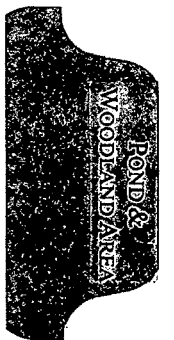
[illegible]

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

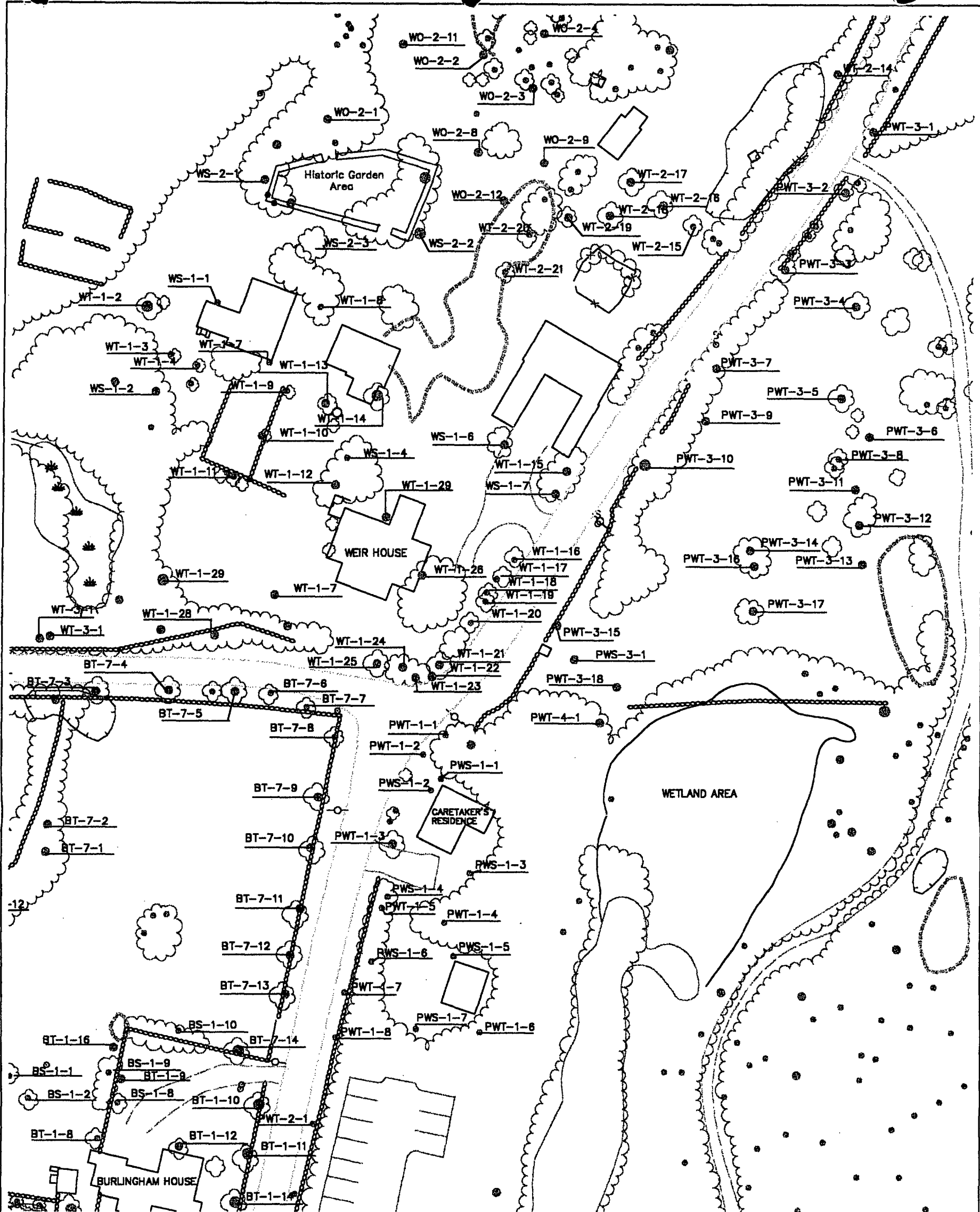
[illegible]

1998 Inventory, Condition Assessment and Work Needed: Speciman Trees and Shrubs

[illegible]



SPECIMEN
TREE & SHRUB
MAINTENANCE



WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT PRESERVATION MAINTENANCE PLAN: POND AND WOODLAND AREA TREES AND SHRUBS

Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999

Weir Farm National Historic Site: Pond and Woodland Area
1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

Weir Farm National Historic Site: Pond and Woodland Area
1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

Weir Farm National Historic Site: Pond and Woodland Area
1998 Inventory, Condition Assessment and Work Needed: Specimen Trees and Shrubs

[illegible]

Weir Farm National Historic Site
Preservation Maintenance Plan

Trail Management

**Trail management was not identified as a priority for the scope of this Preservation Maintenance Plan. However, there are issues related to management of the trail in the Pond and Woodland Area (such as erosion, vegetation management, and visitor safety) that should be addressed. A place holder for this information was added to facilitate the addition of trail management activities by park staff.*



Planting Beds and Borders

Planting beds and borders are defined as “non-turf” areas found along building foundations, stonewalls, and walks, which have high visibility by visitors and have a high intensity of maintenance. The discussion of planting beds and borders is divided into three sections; (1) shrub beds, (2) daylily beds; and (3) mixed herbaceous perennial beds (the beds within the Secret and Sunken Gardens fit into this category but are treated separately in this binder).

Each of these three sections is divided into three parts. First, descriptive locations of each of the planting beds including the management zone are listed. Second, general maintenance guidelines that can be applied to all of the planting beds in the particular section are outlined. Finally, specific recommendations addressing current issues or problems (based on the inventory and condition assessment conducted in June 1998) are suggested. A site map highlighting the location of the planting beds and borders is located at the end of this section.

Shrubs beds – Existing Conditions

The shrub beds at Weir Farm National Historic Site are generally in fair condition. Many of the beds need weeding, mulching and edging. The shrub plantings, in many cases, need renovation pruning (specific pruning needs are discussed in the “Specimen Tree & Shrub Maintenance” sections of this Manual). Almost all of the lilacs are in the first year of a three-year renovation cycle. Invasive exotic shrubs have established themselves in some of the beds and should be monitored and removed.

Locations:

- ❖ Lilac beds at west and north-west corner of Weir House (Weir Complex-1)
- ❖ Lilac beds south of Weir Barn west ell and east of Tack House (Weir Complex-1)
- ❖ Deutzia beds around Secret Garden (Weir Complex-2)
- ❖ Privet bed west side of Secret Garden (Weir Complex-2)
- ❖ Lilac bed south of Secret Garden (Weir Complex-2)
- ❖ Lilac bed screening north lawn of Burlingham House (Burlingham Complex-1,2)
- ❖ Pieris-Rhododendron-Lilac beds on east and north sides of Burlingham House (Burlingham Complex-1)
- ❖ Lilac bed west of Burlingham kitchen (Burlingham Complex-1)
- ❖ Mountain laurel-Rhododendron bed south of Burlingham driveway just inside entrance (Burlingham Complex-1)
- ❖ Lilac bed outside north wall of Sunken Garden (Burlingham-1)
- ❖ Honeysuckle bed at south-east corner of Burlingham Barn (Burlingham-1)
- ❖ Lilac bed on east side of Woodshed (Burlingham-2)
- ❖ Lilac bed on west and north sides of Caretaker’s House (Pond & Woodland Area-1)
- ❖ Lilac bed inside wall south of Caretaker’s House driveway (Pond & Woodland Area -1)
- ❖ Mountain laurel bed on east side of parking lot (Pond & Woodland Area -2)
- ❖ Mixed shrub-sugar maple bed along west side of parking lot (Pond & Woodland Area -2)



General Maintenance Guidelines:

Monitor and remove weeds

- ❖ Monitor weekly with the intent of zero tolerance for annual, biennial and perennial weeds;
- ❖ Hand-pull weeds.

Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Planting Beds and Borders

Monitor soil moisture and supplement with watering

- ❖ Monitor weekly during the growing season for water stress;
- ❖ Provide water with garden hose as needed;
- ❖ Water deeply and less frequently to encourage deep rooting.

Mulch planting beds

- ❖ Mulch shrub beds with woodchips or chipped tree and leaf litter;
- ❖ Apply 2-3" layer after weeding and after organic fertilizer application.

Prune shrubs and deadhead "spent" flowers

- ❖ Remove spent flowers promptly from Rhododendron, Pieris, and Lilacs;
- ❖ This practice both encourages plant energy to be diverted to growth and next year's flower buds, and provides a more aesthetically pleasing landscape.

Monitor planting beds and borders for pests and disease

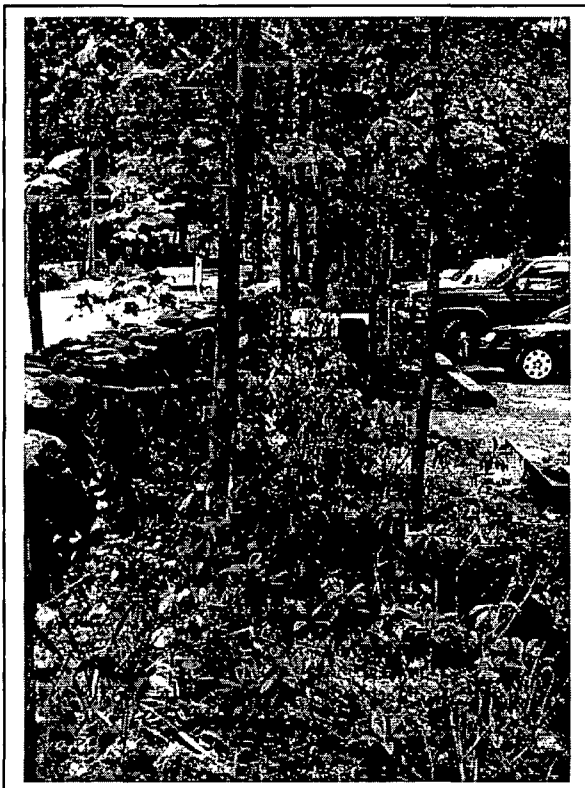
- ❖ Monitor planting beds and borders as dictated by IPM calendar;
- ❖ Prune shrubs according to plant feature data sheets (see *Feature Inventory and Information Manual*) and according to "Specimen Tree & Shrub Maintenance" in this Manual.

Remove leaves and debris

- ❖ Rake fallen tree and shrub leaves out of planting beds and borders into windrows;
- ❖ Mow piles of debris and leaves and either collect and remove or rake back into planting bed as mulch layer.

Apply organic fertilizer to planting beds

- ❖ Apply organic fertilizer to planting beds twice per year (in fall after removal of leaves and debris and in early spring).



Specific Maintenance Guidelines:

Lilac bed south of Secret Garden (Weir Complex-2)

- ❖ Weed out *Rubus* vines and black swallowwort;
- ❖ Protect moss rose in bed;
- ❖ Protect young sprouts with deer fencing during winter months.

Lilac bed outside north wall of Sunken Garden (Burlingham Complex-1)

- ❖ Protect newly planted replacement shrubs with deer fencing.

Mountain Laurel bed on east side of parking lot (Pond & Woodland Area-2)

- ❖ As shrubs grow together, eliminate lawn area between them and treat as one large mulched shrub bed.

Mixed shrub-sugar maple bed along west side of parking lot (Pond & Woodland Area-2)

- ❖ Thin out sugar maples to encourage lower limb growth on remaining sugar maples;
- ❖ Remove *Rhododendrons* and any mountain laurel that are failing;
- ❖ Remove rocks and stumps along stone wall;
- ❖ Re-grade and plant grass seed to facilitate maintenance between sugar maples.

Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

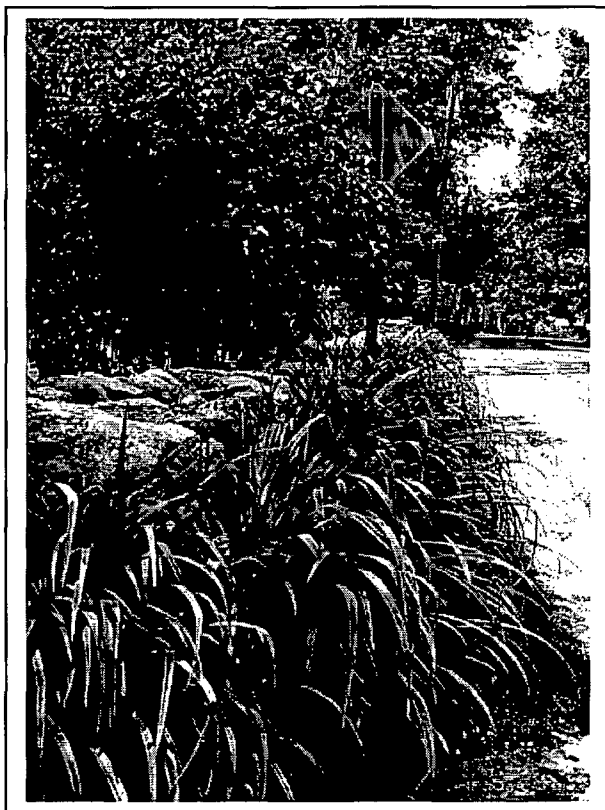
Planting Beds and Borders

Daylily beds – Existing Conditions

In general, the daylily beds at Weir Farm suffer from overcrowding and aggressive deer grazing. Several of the daylily beds, particularly along roadsides, also suffer from automobile exhaust, road salt, and compaction. These stresses result in plants with decreased vigor and smaller than optimum size. The daylily beds along Nod Hill Road and the Burlingham driveway are in the poorest condition at this time. These beds are at least 40 years old and in need of renovation.

Locations:

- ❖ West side of Nod Hill Road adjacent to the Weir Barn (Weir Management Zone-3)
- ❖ East side of Nod Hill Road opposite Weir House and Barn (Pond & Woodland Management Zone-3)
- ❖ North and south sides of Burlingham driveway outside Sunken Garden (Burlingham Management Zone-1)
- ❖ East and west sides Nod Hill Road between Burlingham House and parking lot (Burlingham Management Zone-1, Pond & Woodland Management Zones-1&2)



General Maintenance Guidelines:

Deter deer browsing

- ❖ Apply deer repellent to leaves 1x/week beginning 2nd week of April until after bloom period.¹

Monitor beds for renovation needs

- ❖ Monitor condition of daylilies (2x/year);
- ❖ Note plant size, plant vigor, quality and quantity of flowers;
- ❖ Identify stresses such as overcrowding, deer grazing.

Deadhead “spent” flowers

- ❖ Remove spent flowers promptly from daylilies.
- ❖ This practice both encourages plant energy to be diverted to growth and next year’s flower buds, and provides a more aesthetically pleasing landscape.

Specific Maintenance Guidelines:

West side of Nod Hill Road adjacent to the Weir Barn (Weir Management Zone-3)

East side of Nod Hill Road opposite Weir House and Barn (Pond & Woodland Management Zone-3)

North and south sides of Burlingham driveway outside Sunken Garden (Burlingham Management Zone-1)

Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Renovate beds if necessary (based on condition assessment)

- ❖ Remove daylily clumps carefully and set aside in cool protected place;
- ❖ Amend the planting bed soil by incorporating humus and organic fertilizer;
- ❖ Divide the tuberous roots of the daylilies into segments having 3-4 shoots;
- ❖ Re-plant the divided daylily plants 8” on center;
- ❖ Thereafter, renovate the beds every 4-6 years.

¹ *Bobbex* has been used successfully by the park. *Bobbex* is produced by Bobbex, Inc. and is an organic product whose primary purpose is to stimulate plant growth and vitality. An added benefit of *Bobbex* is that its’ odor and taste deter deer from feeding on it. Additional information about *Bobbex* and other alternative deer deterrents can be found in the appendices of this Manual.

Planting Beds and Borders

Mixed herbaceous perennial beds

Locations:

- ❖ Northeast corner of Weir House outside dining room (Weir Management Zone -1)
- ❖ South side of Weir House porch (Weir Management Zone-1)
- ❖ Burlingham garden terraces (Burlingham Management Zone-2)
- ❖ Outcrop south of Burlingham House visitor's entrance (Burlingham Management Zone-1)
- ❖ Foundation plantings on either side of the visitor's entrance (Burlingham Management Zone-1)
- ❖ Foundation plantings on either side of east Burlingham House entrance (B-1)
- ❖ Parking lot wall-top periwinkle bed (Pond & Woodland Management Zone-2)

General Maintenance Guidelines:

Monitor and remove weeds

- ❖ Monitor weekly with the intent of zero tolerance for annual, biennial and perennial weeds.
- ❖ Hand-pull weeds.

Monitor soil moisture and supplement with watering

- ❖ Monitor weekly during the growing season for water stress.
- ❖ Provide water with garden hose as needed.
- ❖ Water deeply and less frequently to encourage deep rooting.

Mulch planting beds

- ❖ Mulch perennial beds with "sweet peat" in early spring or as needed.
- ❖ Apply 2-3" layer after weeding and after organic fertilizer application.

Deadhead "spent" flowers

- ❖ Remove spent flowers promptly from herbaceous flowering plants.
- ❖ This practice both encourages plant energy to be diverted to growth and next year's flower buds, and provides a more aesthetically pleasing landscape.

Monitor planting beds and borders for pests and disease

- ❖ Monitor planting beds and borders as dictated by IPM calendar;
- ❖ Prune shrubs according to plant feature data sheets (see *Feature Inventory and Information Manual*) and according to "Specimen Tree & Shrub Maintenance" in this Manual.

Remove leaves and debris

- ❖ Gather and remove dead foliage of herbaceous perennials and dispose of in late fall;
- ❖ Rake fallen tree and shrub leaves out of planting beds and borders into windrows;
- ❖ Mow piles of debris and leaves and either collect and remove or rake back into planting bed as mulch.

Apply organic fertilizer to planting beds

- ❖ Apply organic fertilizer to planting beds twice per year (in fall after removal of leaves and debris and in early spring).

Specific Concerns & Recommendations:

Northeast corner of Weir House outside dining room (Weir Management Zone -1)

- ❖ Divide and re-plant hosta plants to eliminate overcrowding;
- ❖ Edge bed to define border;
- ❖ Mulch beds with "sweet peat" in early spring or as needed.
- ❖ The hosta planting suffers from deer browsing, a favorite food of deer. A deer resistant replacement alternative should be identified and considered to replace the existing hostas.

Planting Beds and Borders

South side of Weir House porch (Weir Management Zone-1)

Plantings in this bed are an undefined mixture of weeds, herbaceous perennials, leftover floral pots, and overgrown boxwood. The CLR Treatment Plan deems this area a low priority during the Andrew's tenancy (see *Cultural Landscape Report for Weir Farm National Historic Site, Volume 2: Analysis and Treatment, p. 180*). As the park becomes more directly involved in this area, a restoration planting plan, based on historic documentation and reflective of the 1940s historic period, should be developed and implemented. After implementation of the restoration planting, this Preservation Maintenance Plan should be revised and updated to include specific preservation maintenance activities related to preserving the character of the restored planting beds.



Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Burlingham garden terraces (Burlingham Management Zone-2)

The field stone walkways and bed borders in the garden terraces have recently (1998) been restored. Several clumps of peony along the northwest border of the middle terrace were recently divided. Aerial photos and historic photographs give direct evidence of the luxurious nature of this garden space during Cora Burlingham's time. The goal is to "recapture the effect of a garden" (see *Cultural Landscape Report for Weir Farm National Historic Site, Volume 2: Analysis and Treatment, p. 207*). Using the plant list provided on page 207 of the CLR Treatment Plan, a rehabilitation-planting plan for the garden terraces should be developed and implemented.²

Outcrop south of Burlingham House visitor's entrance (Burlingham Management Zone-1)

Historic photographs and plant remnants give direct evidence of the wealth of rock garden plants and spring flowering bulbs formerly found in the fissures and area immediately surrounding this outcrop.

- ❖ Remove excess soil build-up to reveal the beauty of the outcrop. Care must be taken to protect the horticultural plant remnants.
- ❖ Plant additional deer resistant plants, such as *Narcissus*, to perpetuate the beauty of this character-defining feature.
- ❖ Weed the area frequently to prevent the establishment of annual and perennial lawn grasses.

Foundation plantings on either side of the visitor's entrance (Burlingham Management Zone-1)

- ❖ Dig and divide spiderwort plants;
- ❖ Amend soil by incorporating humus and a small amount of organic fertilizer;
- ❖ Reset stones lining planting beds;
- ❖ Replant the strongest specimens of the divided spiderwort plants in the south beds;
- ❖ Cut the spiderwort plants back after flowering for one or two more additional bloom periods.

² It is recommended that the park seek technical support from a historical landscape architect to assist with the preparation of the rehabilitation-planting plan. It is important that the type of plant material and the arrangement of plants are in keeping with the historic character of the property. In addition, the following recommendations should be considered: plantings must be resistant to, or tolerant of, deer browsing; plantings should be fairly drought resistant and be adaptable to infrequently watered beds; plantings should be kept to a size such that the structural elements of the garden space, namely the stone walls and the open turf areas, should not be screened from view; plantings in the lower, west terrace bed, on either side of the stairs, should be kept to no higher than 3 feet, to allow views of middle terrace for public events such as the annual September Jazz Concert.

Planting Beds and Borders

Foundation plantings on either side of east Burlingham House former entrance (B-1)

Rehabilitate planting beds consisting of densely growing lily-of-the-valley and several lungwort plants.

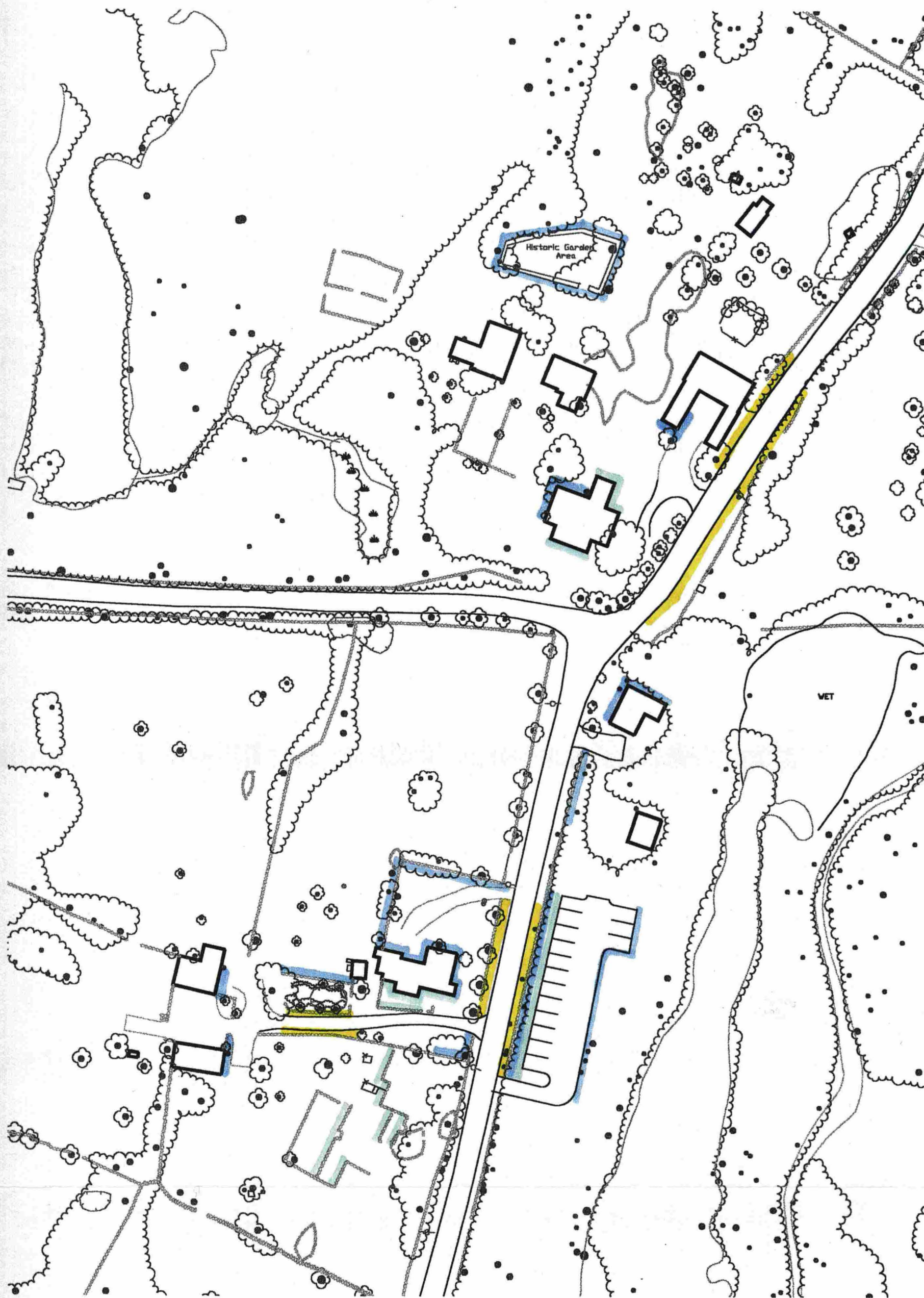
- ❖ Remove all plants;
- ❖ Loosen soil to 12" depth and amend by incorporating humus and a small amount of organic fertilizer;
- ❖ Re-plant beds incorporating low maintenance, deer resistant plants which complement the existing plantings.³

Parking lot wall-top periwinkle bed (Pond & Woodland Management Zone-2)

Though periwinkle is actually a woody plant, the care of this planting bed is in keeping with the mixed herbaceous perennial beds discussed in this section.

- ❖ Weed periodically (2x/month);
- ❖ Mulch beds with "sweet peat" in early spring or as needed;
- ❖ Keep vines trimmed back from beyond bollards.

³ Ibid.



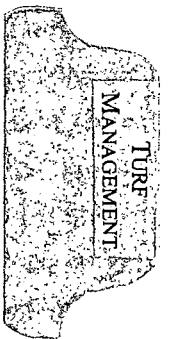
WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT
 PRESERVATION MAINTENANCE PLAN
 PLANTING BEDS AND BORDERS

Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999

- Shrub beds
- Daylily beds
- Mixed herbaceous perennial beds



NORTH
 NOT TO SCALE



Turf Management

Historic Appearance/Intent

Expressing a goal common to many an American homeowner, J. Alden Weir first tried to "make the grass grow as it should" in 1891. He expressed his pleasure the following year after the purchase of a new lawn mower made "the lawn look like velvet" (see *Cultural Landscape Report for Weir Farm National Historic Site Volumes II and I*). There were basically two types of turf at Weir Farm during the historic period; manicured lawn around the Weir House and Burlingham House, and pasture or meadow grasses in the outlying fields.

Goals of Turf Management Program

1. Establish and maintain healthy and visually uniform turf around the Burlingham Complex and Weir Complex.
2. Maintain pasture grasses and deter seedling tree growth in the pastures in order to reflect the historic character of the fields.
3. Increase the stability and safety of pedestrian traffic throughout the landscape.

Existing Conditions

The existing turf around the Burlingham and Weir Complexes (hereafter referred to as domestic lawns) is in fair condition. Current maintenance activities related to the domestic lawns include mowing and trimming and do not include soil testing, fertilization, irrigation or aeration. As a result, there are compaction problems, sparse turf stands, poor drainage, unsuitable pH, an abundance of broad-leaved weeds, and a grub-infestation that has caused a mole problem.

The condition of the fields, pastures, and meadows is substantially better than that of the domestic lawns. Sporadic tree and weed seedlings do appear, particularly if a scheduled mowing is missed or delayed.

There are currently three separate mowing schedules for Weir Farm turf (*see map in this section*):

1. Weekly – domestic grounds around Burlingham Complex and portions of Weir agricultural grounds – this takes an estimated time of 9 hours to complete
2. Monthly – edges of fields to inhibit further invasive or unwanted growth between fields.
3. 2-3x/year – fields around Burlingham Complex (areas 3-7) and fields north of Weir Complex (if staffing time allows).

**The domestic grounds around the Weir Complex are not maintained by the NPS at this time.*



Domestic Lawns - General Maintenance Guidelines

Photodocument existing condition

- ❖ A series of photographs should be taken on an annual basis, documenting the existing condition of the domestic lawns.
- ❖ In particular, photo documentation of significant damage, deterioration or pest/disease problems of the lawns prior to stabilization and repair should be completed for the preservation record.

Monitor condition of turf

- ❖ Perform weekly inspection of domestic lawns to evaluate soil moisture and identify pest and disease problems;
- ❖ Gather soil samples from domestic lawns and turf panels in Sunken Garden and Weir Garden and send to professional laboratory or extension service for testing.

Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Turf Management

Fertilize and/or apply lime to domestic lawns and turf panels in Sunken Garden and Weir Garden according to soil test results

- ❖ Optimum turfgrass growth occurs at a pH of 6.4-6.8;
- ❖ Mechanically dethatch domestic lawns and garden turf panels using rakes or a dethatcher;
- ❖ Based on results of a soil test, amend the soil with limestone and/or fertilizer.

Re-seed or overseed bare areas (if necessary)

- ❖ Identify sparse turf areas
- ❖ Rake out lawn to remove thatch and debris
- ❖ Seed bare areas using a slicer seeder or rotary seeder at recommended rates (in late summer-early fall)¹

Core aerate compacted areas of domestic lawns and turf panels in Sunken Garden and Weir Garden

Aerating the soil with mechanical equipment can minimize the effect of compaction. A core aerator removes narrow plugs of soil and thatch from the lawn producing a series of small 2-4" deep holes. These holes allow water, air, and fertilizer to reach turf roots. This process can temporarily injure turf roots and therefore is best accomplished during the most active growth periods (spring and/or fall).

Mow domestic lawns and turf panels in Sunken Garden and Weir Garden

- ❖ Mow lawns frequently (generally 1x/week), never removing more than one third of the total height;
- ❖ Maintain domestic lawns at a height of 2" in spring and fall and 2-2 ½" in summer;
- ❖ Begin mowing around mid-April and continue until grass stops growing;
- ❖ Sharpen blades frequently. Dull blades tear and stress the plant. Turf mowed with dull blades will appear grayish after mowing.

Irrigate lawns (if necessary)

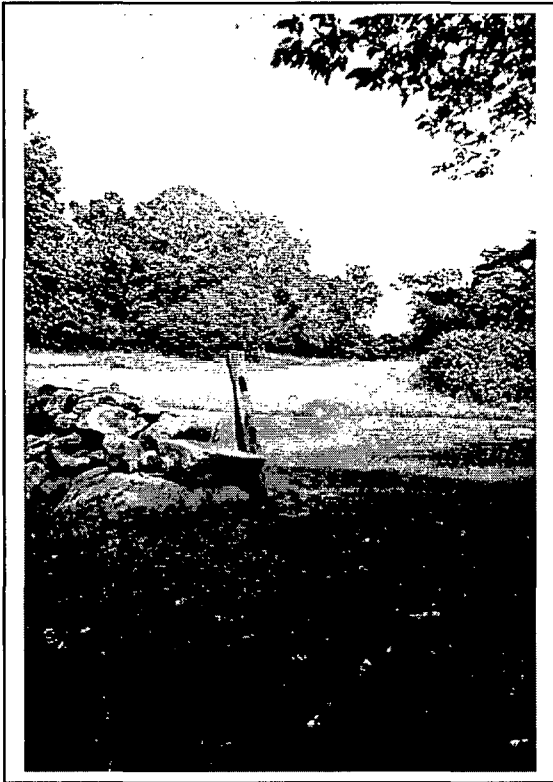
Typically, average rainfall in the northeast is sufficient for grass survival. However, summer drought and/or high temperatures often cause living grass plants to enter dormancy. An irrigation program to prevent this condition should be developed.

- ❖ Monitor domestic lawns for heat stress (brown, coarse texture, little or no growth) and/or wilting (blue-green color and persistent foot or equipment tracks);
- ❖ Irrigate lawns using garden hoses and sprinklers to prevent summer dormancy;
- ❖ Irrigation should be infrequent and deep to encourage deep root growth (1-1 ½" of water per week).
- ❖ Trim turf borders in Secret Garden along stone-lined bed edges.

**The Secret Garden has bedrock close to the surface causing the soil to dry out quickly. Closely monitor the Secret Garden for irrigation needs.*

¹ Seeding during late summer (August 15-September 15) generally yields the best results. Seeding may be done during the spring; however, weed competition and summer heat stress may reduce establishment success.

Turf Management



Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Fields/Pastures/Meadows – General Maintenance Guidelines

Photodocument existing conditions

- ❖ A series of photographs should be taken on an annual basis, documenting the existing condition of the domestic lawns.
- ❖ In particular, photo documentation of significant damage, deterioration, pest/disease problems or presence of successional vegetation growth in the fields/pastures/meadows prior to stabilization and repair should be completed for the preservation record.

Monitor conditions

- ❖ Perform bi-annual inspection of fields/pastures/meadows to evaluate the presence of tree seedlings;
- ❖ Perform cursory inspections of fields/pastures/meadows noting the establishment of tree seedlings.²

Remove volunteer tree/shrub/weed seedlings

Mechanically remove volunteer seedlings using weed wrench, shovel, axe or chainsaw;

- ❖ Apply systemic herbicide, *Roundup* or *Garlon*, or non-systemic, *Brush-B-Gone*, to remaining stem/stump by painting the chemical on with a paintbrush (see appendices for herbicide specifications)³

Mow fields/pastures/meadows

- ❖ Mow field edges to inhibit encroachment of unwanted invasive or volunteer vegetation;
- ❖ Mow fields/pastures/meadows (around Burlingham Complex and north of Weir Complex) 2-3x/year.

Re-establishment of Meadow grasses

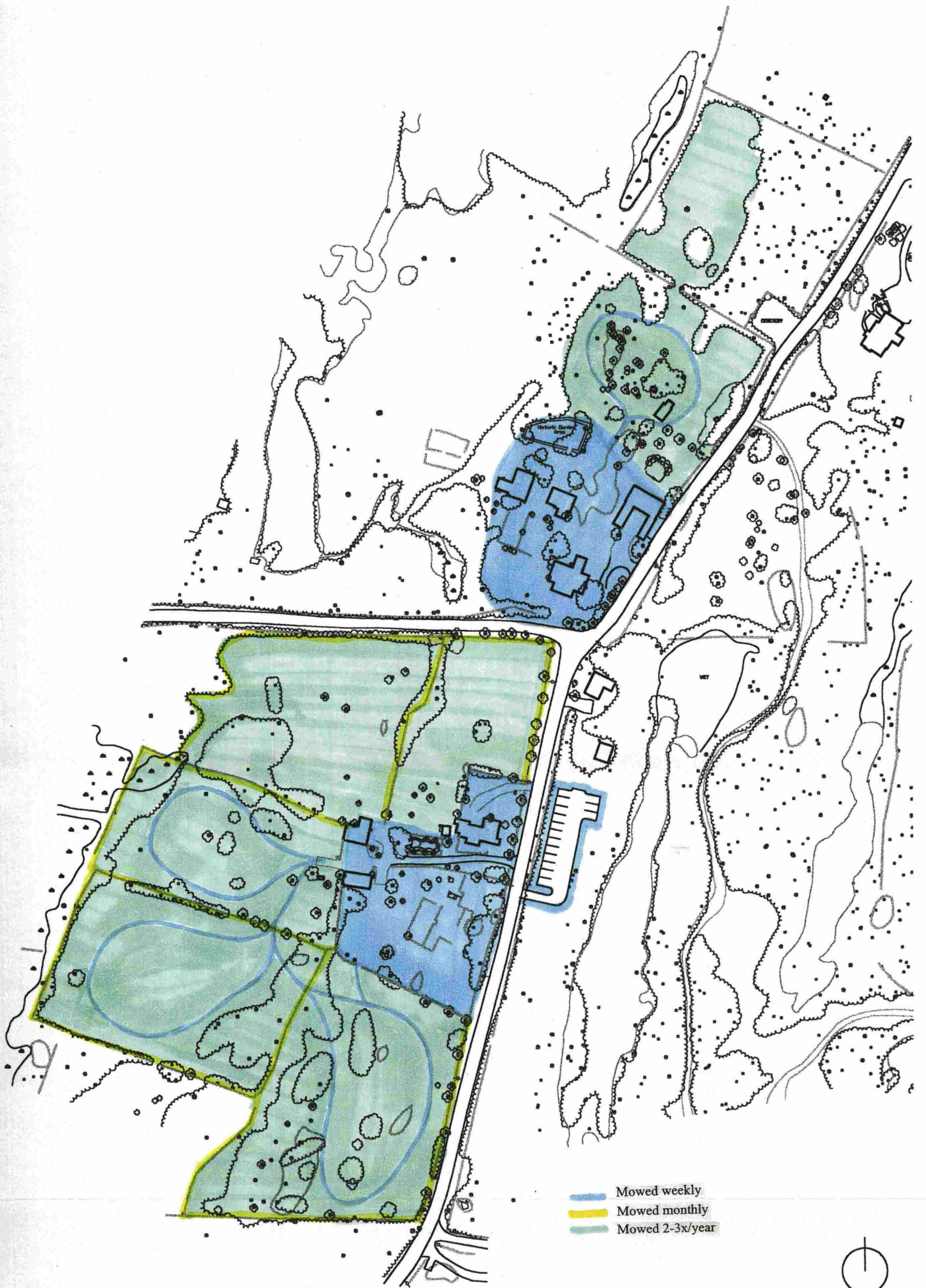
According to the *Cultural Landscape Report for Weir Farm National Historic Site, Volume II: Analysis and Treatment*, approximately 7.5% of the park woodlands should be removed to rehabilitate the spatial qualities of the property as they appeared in 1940 (see *CLR, Volume II, page 160-162*). The following procedures on clearing identified areas and re-establishing meadow grasses should be implemented:

- ❖ Collect soil samples and send to local cooperative extension service for testing;
- ❖ Mechanically remove trees, shrubs, and vines using weed wrench, shovel, axe and/or chain saw;
- ❖ Grind tree stumps down to 3" below surface;
- ❖ Rake and pile debris (leaves, sticks, stump grindings) in locations out of immediate public view;
- ❖ Burn piles of brush in fall and winter;⁴
- ❖ Scarify soil with fork rake;
- ❖ Apply lime and/or fertilizer according to soil test results;
- ❖ Sow meadow grass seed mix (to be determined by park horticulturist);
- ❖ Mulch with salt hay.

² The maintenance staff should be aware and note any volunteer tree growth in the fields throughout the year (between bi-annual inspections). Removal of seedlings early in their establishment and growth is easier and less costly.

³ NPS 10-21A pesticide use requests should be approved prior to the application of any pesticide with an EPA Registration Number. Consult with the Regional IPM Coordinator for recommendations regarding herbicide/pesticide uses.

⁴ Burning remains the most economically feasible alternative for the disposal of accumulated brush. Notify Ridgefield and Wilton town officials and NPS Fire Management oversight staff prior to any burning on-site. Weather conditions must be conducive for burning and are typically favorable during fall and winter months. At all times, be sure to monitor wind and drought conditions prior to burning.



WEIR FARM NATIONAL HISTORIC SITE, Ridgefield and Wilton, CT PRESERVATION MAINTENANCE PLAN TURF MOWING SCHEDULES

Prepared by: Olmsted Center for Landscape Preservation
 United States Department of the Interior, National Park Service
 January 1999



Invasive Plant Management

Many of the plants that are part of our landscapes are considered non-native or exotic because they were brought to the United States from other countries and have become established or “naturalized.” Some of these exotic plants are termed “invasive” because they have naturalized so well that they compete well with or, in many cases, out-compete the native vegetation in a given area. Some native or non-exotic plants are considered invasive as well. These species are considered “pests” for the same reasons, they establish themselves in unwanted locations and they often out-compete desirable vegetation. Invasive plants typically have abundant seed production, a high seed germination rate, and a rapid growth rate.

A number of invasive plants, both native and non-native, are present at Weir Farm (see *Feature Inventory and Information Manual* for invasive plant data sheets). They tend to be more prevalent in disturbed sites such as roadsides, sites with exposed soil, in the garden areas, and along stonewalls. It is important that these plants be controlled to eliminate their threat to historic plantings and other character-defining features of the cultural landscape. The plants identified here are either a current problem or have the potential of becoming a problem at the site because they have been found nearby in the surrounding community.

Park staff is currently researching and pursuing the use of a Geographic Information System (GIS) to monitor, illustrate, and report park maintenance needs. This tool will be useful for tracking the extent of invasive species in the woodlands in and around Weir Farm.

Goals of Invasive Plant Management Program

1. Stop the growth cycle of invasive species by initiating an aggressive management program.
2. Protect existing character-defining features from invasive plants.
3. Manage invasive plants according to the accepted principles of the National Park Service Integrated Pest Management Program and the State of Connecticut.

Existing Conditions (Non-natives)

*Asiatic Barberry (*Berberis thunbergii*)*

- ❖ The most serious barberry infestation is found on the northern park boundary in and around a drainage swale running east-west from Nod Hill Road down to the Weir Pond. Plants in some portions of this area are growing so densely that no other plants can survive. Barberry can also be found along many of the stonewalls lining the open fields and roadways. Some of the plants have grown 4-5' high and are serving as seed sources for further dissemination throughout the site.

*Winged Euonymus (*Euonymus alatus*)*

- ❖ There is a light infestation of Euonymus throughout the site. It can be found in fields, along roads and stonewall and in the woodland. The plants requiring the most immediate attention are located above a stonewall on the east side of the Burlingham garden terraces. These too are seed sources and should be removed.

*Multiflora rose (*Rosa multiflora*)*

- ❖ Multiflora rose can be found along the field edges and stonewalls and in prominent locations of the Burlingham domestic grounds. Several very large thickets have been removed from the Burlingham garden terraces and the Burlingham orchard area.

*Oriental Bittersweet (*Celastrus orbicularis*)*

- ❖ Oriental Bittersweet can be found in disturbed areas throughout the site. The infestation is particularly heavy along either side of Pelham Road and along the northern section of Nod Hill Road.

*Garlic mustard (*Alliaria petiolata*)*

- ❖ This plant unfortunately can grow in sun or shade and is found throughout the site in both developed and natural areas.

Invasive Plant Management

Tree-of-heaven (*Ailanthus altissima*)

- ❖ Tree-of-heaven is a problem primarily around the lone surviving large tree southwest of the Burlingham woodshed. Seedlings can be found sporadically along the roadways.

Shrub honeysuckle (*Lonicera sp.*)

- ❖ A light infestation of shrub honeysuckle can be found along the overgrown field edges. Several prominent specimens are located around the Burlingham barn and should be replaced with alternate plants as soon as possible.

Japanese honeysuckle (*Lonicera japonica*)

- ❖ A light infestation of Japanese honeysuckle can be found along the overgrown field edges.

Black swallow-wort (*Vincetoxicum nigrum*)

- ❖ This is the most pernicious of the herbaceous invasive plants at Weir Farm.
- ❖ The area of greatest concern is in the Weir Garden where Black Swallow-wort grows up through established plantings. In the past two years this plant has been seen at a much higher frequency both at Weir Farm and along the roadsides in the local community. Populations of this plant have established themselves in the Truants field and in the Burlingham orchard.

Russian Knotweed (*Polygonum cuspidatum*), Purple Loosestrife (*Lythrum salicaria*), Summer Olive (*Elaeagnus sp.*)

- ❖ Not presently considered at an infestation level, but population must be monitored carefully.

Existing Conditions (Natives)

Three native or non-exotic plant species have been included in this section because of their “pest” status. These species, poison ivy, greenbriar and sassafras, currently present a problem and require similar management practices as the non-native or exotic invasive plants discussed above.

Poison ivy (*Toxicodendron radicans*)

- ❖ Found in the disturbed areas through the site, particularly along field edges and along walls. It causes a contact dermatitis in many individuals. All parts of the plant are poisonous (leaves, viney-stem, fruit, roots). Particular attention must be paid to the prevention of including any part of the poison ivy plant in a brush pile to be burned to avoid ingestion of smoke borne toxins.

Greenbriar (*Smilax rotundifolia*)

- ❖ Found sporadically along field edges, but more often in woodland understory settings. This thorny, green stemmed vine forms impenetrable thickets presenting a health and safety risk to visitors and staff by catching on clothing and skin. Greenbriar frequently grows on other vegetation causing deterioration and its’ dense growth impedes historic views in the cultural landscape.

Sassafras (*Sassafras albidum*)

- ❖ Found in fields and along field edges, sassafras trees produce root suckers and abundant seedlings.

Invasive Plant Management

General Maintenance Guidelines

Photodocument existing condition

- ❖ A series of photographs should be taken on an annual basis, documenting the presence of invasive plant species.
- ❖ In particular, prior to removal, photo documentation of their affect on character-defining features should be completed for the preservation record.

Monitor for presence

- ❖ Perform inspection of site, particularly more remote areas, twice each year (late spring and early fall) to identify invasive plant species and potential problems.
- ❖ Park staff should be aware of invasive species and monitor daily for their presence in high use areas.

Remove invasive species

- ❖ Removal of invasive species is best done in spring when seeds are not on the plant to limit the potential of transporting seeds from one portion of the site to another.
- ❖ Using weed wrench or shovel, remove invasive species (this is best done when soil is moist).
- ❖ For large or very aggressive species (*Ailanthus* and *Celastrus*), apply a systemic herbicide such as Roundup or Garlon to the stumps or stems using a paint brush.¹
- ❖ Cover any exposed soil with organic debris from around the hole to inhibit further weed establishment.

Management Recommendations for Specific Invasive Species

Non-Natives

*Asiatic barberry (*Berberis thunbergii*)*

- ❖ Hand pull seedlings wherever seen, particularly in high visitor use areas
- ❖ Dig out large plants with shovel or remove with weed wrench
- ❖ Remove in spring when current year's fruit is not yet formed
- ❖ Do not chip plants with berries

*Winged Euonymus (*Euonymus alatus*)*

- ❖ Hand pull seedlings wherever seen, particularly in high visitor use areas
- ❖ Dig out large plants with shovel or remove with weed wrench
- ❖ Remove and dispose of all plant parts carefully as this species has the ability to layer from stem pieces
- ❖ Do not chip

*Multiflora rose (*Rosa multiflora*)*

- ❖ Hand pull seedlings wherever seen, particularly in high visitor use areas
- ❖ Use thick gloves to avoid injury from thorns
- ❖ Dig out large plants with shovel or remove with weed wrench

*Oriental bittersweet (*Celastrus orbicularis*)*

- ❖ Hand pull seedlings wherever seen, particularly in high visitor use areas
- ❖ Dig out large plants with shovel or remove with weed wrench
- ❖ Apply systemic herbicide to stumps that cannot be completely removed using paintbrush (*Roundup* or *Garlon*)

¹ NPS 10-21A pesticide use requests should be approved prior to the application of any pesticide with an EPA Registration number. Consult with the Regional IPM Coordinator for specific recommendations and questions/concerns.

Invasive Plant Management

Garlic mustard (*Alliaria petiolata*)

- ❖ Hand pull plants

Tree of heaven (*Ailanthus altissima*)

- ❖ Manually remove seedlings using a shovel or weed wrench
- ❖ Apply systemic herbicide to stumps that cannot be completely removed (using paintbrush, apply *Roundup* or *Garlon*)
- ❖ Remove large (32" diameter) tree at the southwest corner of the Burlingham woodshed (BT-2-7) should be removed

Shrub honeysuckle (*Lonicera sp.*)

- ❖ Hand pull seedlings wherever seen, particularly in high visitor use areas
- ❖ Dig out large plants with shovel or remove with weed wrench

Remove large multi-plant honeysuckle thicket in Burlingham laundry yard as soon as possible.

Japanese honeysuckle (*Lonicera japonica*)

- ❖ Hand pull vine or dig out with shovel wherever seen
- ❖ Cut upper portions of vine out of host plant if necessary

Black swallow-wort (*Vincetoxicum nigrum*, *Cynanchum nigrum*)

- ❖ Dig out plants being careful to remove mass of adventitious buds 6-8" below ground level
- ❖ Treat with systemic herbicide if necessary (*Roundup*)
- ❖ In garden beds where invasive species grows amidst desirable plants, stems should be painted with *Roundup* using a 1" wide paintbrush

Potential Problem Species (Non-Native)

Russian knotweed (*Polygonum cuspidatum*)

- ❖ Monitor for species on property (has been seen growing along roadsides in Wilton and Ridgefield)
- ❖ Apply *Roundup* in September to eradicate
- ❖ Aggressive eradication efforts are recommended

Purple loosestrife (*Lythrum salicaria*)

- ❖ Monitor for species on property (found along pond edge in the past; has the potential to damage wetland areas)
- ❖ Hand dig plants whenever seen
- ❖ Aggressive eradication efforts are recommended

Natives

Poison ivy (*Toxicodendron radicans*)

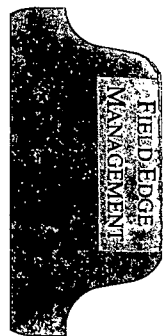
- ❖ Remove this plant wherever possible to reduce health and safety risk to visitors and staff. Apply a systemic herbicide, such as *Roundup*, to the foliage or cut stems.

Greenbriar (*Smilax rotundifolia*)

- ❖ Remove this plant wherever possible to reduce health and safety risk to visitors and staff. Mechanically pull plants using a weed wrench.

Sassafras (*Sassafras albidum*)

- ❖ Mechanically remove this plant with a weed wrench when young. Cut larger trees (over 2" caliper) to the ground and apply *Garlon* to cut stump.



Field Edge Management

Historic Appearance/Intent

The managers of Weir Farm NHS were mandated by Congress in 1990 to "maintain the integrity of a setting that inspired artistic expression and encourages public enjoyment..." One important component of the Weir Farm setting, and certainly one of the more important visual elements of its landscape, is the open field or pasture. The *Cultural Landscape Report* and Jack Larkin's "Treatise on Agricultural History" both mention the great amount of effort that was expended by farmers in years past to keep the fields open.

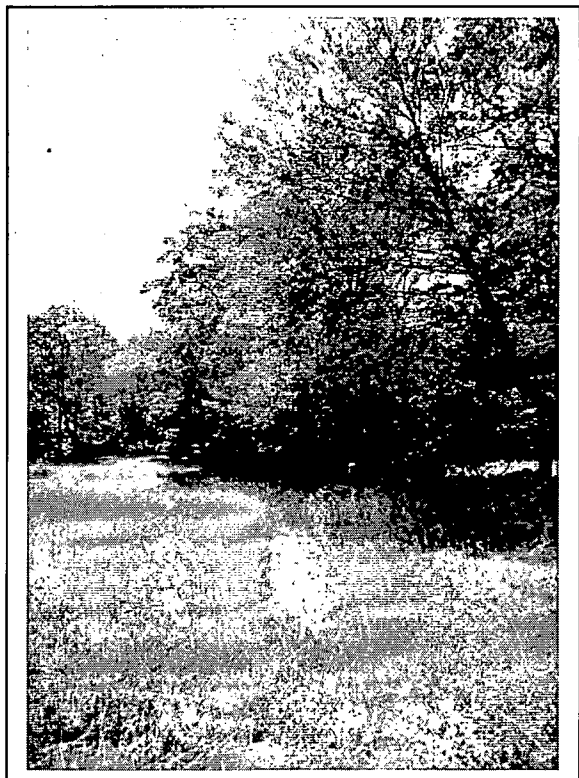
Goals of Field Edge Maintenance Program

Weir Farm's General Management Plan directs park managers "to implement effective resource management and land protection strategies that safeguard the site's cultural and natural resources..." In order to meet this management objective, the natural process of field succession must be monitored and managed. The following program goals will direct the rehabilitation and management of field edges that help define the historic character at Weir Farm NHS:

1. Accurately document the existing conditions of the Weir Farm field edges;
2. Restore specific landscape settings or views as seen in historic paintings, etchings, drawings, and photographs of the Weir and Burlingham properties;
3. Identify and protect small trees to be the next generation of vanguards that will eventually replace presently older maturing and deteriorating specimens;
4. Limit the encroachment of tree and shrub vegetation into the fields;
5. Eliminate undesirable plant species that are either toxic, invasive or not appropriate to the specific site.

Existing Conditions

Today, many of the field edges on the Burlingham and Weir properties are lined with a layer, and in some locations, multiple layers of tree, shrub, and vine growth. These layers of plant growth are slowly moving out into the fields disguising the historic field edges, reducing the overall area of open field, and blocking historic painting scenes and views. Furthermore, two previously open fields in the Pond & Woodland Area, viewable on the 1938 aerial photo, have disappeared altogether. The process of succession has transformed the grassy, open field area into birch-maple-ash woodland.



In an effort to recapture the historic setting of open fields and pasture, bound by stone walls and stately specimen trees, reclamation of the field edges must take place. Olmsted Center and Park staff developed general maintenance and three specific vegetation management strategies for the reclamation of field edges. The general guidelines apply to all field edges, regardless of their existing condition and historic appearance. The vegetation management strategies are based on 1998 existing conditions and the historic character of the field edges documented in volumes II and I of the *Cultural Landscape Report* for Weir Farm NHS.

General Maintenance Guidelines

Photodocument existing conditions

- ❖ A series of photographs should be taken on an annual basis, documenting the existing conditions of the field edges in order to add to the historic record.
- ❖ The photographs should include documentation of significant historic trees, views, and successional vegetation.

Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

Field Edge Management

Complete an inventory and condition assessment and revise existing map

- ❖ Identify the location, size, health, species, age and density of existing trees;
- ❖ Identify the location of large stumps (remnants of historic trees);
- ❖ Identify the location and species of invasive or exotic plants;
- ❖ Identify the existing topography and the presence of exposed bedrock;
- ❖ Prepare an existing condition map depicting the field edges and vegetation.¹

Conduct walk-through with landscape preservation team²

- ❖ Identify the historic character of each of the field edges and the desired effect of maintenance activities;
- ❖ Identify and tag historic specimen trees to be preserved and replaced when necessary (the large trees which contribute to the historic setting/character).³
- ❖ Identify and tag young plant material to be preserved and maintained as the next generation of specimen trees. These trees will be straight, vigorously growing, and located relatively close to mature trees with the intent that when the older tree deteriorates beyond repair and is removed, the adjacent replacement tree will take its place as a structural element in the landscape.
- ❖ Identify non-historic and/or invasive vegetation to be removed.

Vegetation Management Strategy I (SI)

The first vegetation management strategy requires the most intense level of planning and effort. This strategy can be applied to field edges with one or more layer(s) of trees, shrubs and vines growing along a field edge where the intent is to restore and maintain an aesthetically pleasing view of a historic pasture bordered by stone walls and specimen vegetation. An example is the growth along the stonewalls along the interior borders of the Burlingham fields (management zones 3-7). This strategy may require the removal of large vegetation (greater than 6" caliper) and will be subject to compliance with Section 106 of the National Historic Preservation Act.⁴

Field Edge Reclamation Procedures

Remove non-historic and/or invasive vegetation

- ❖ Mechanically remove non-historic or invasive vegetation less than 4" caliper using weed wrench, shovel, axe and/or chainsaw;
- ❖ Mechanically remove non-historic or invasive vegetation 4-10" caliper using standard directional drop procedures (see appendices);
- ❖ Mechanically remove non-historic or invasive vegetation greater than 10" caliper using standard sectional takedown procedures (see appendices).

Treat stumps to prevent resprouting

- ❖ Treat remaining stumps with systemic herbicide, *Roundup* or *Garlon*, or non-systemic, *Brush-B-Gone*, by painting the chemical on the stump (see appendices for herbicide specifications).⁵

¹ Park staff has prepared a map depicting the field edges. This map should be reviewed and revised to include the location of significant plant material, curves or indentations in the stonewalls indicating where trees might have historically been located, and any other special features found along the field edge.

² The landscape preservation team should include the Weir Farm Section 106 Coordinator, Historical Landscape Architect 106 Advisor, and the Weir Farm horticulturist. Removal of trees larger than 6" caliper may require Section 106 compliance. Working with the landscape preservation team to identify appropriate trees for removal and replacement will facilitate the 106 compliance process. Decisions regarding trees to be preserved to serve as replacements will be somewhat subjective and dependent on the existing surrounding plant material. In general, sugar maples and oaks will be selected over hickories, birches, ashes, and red maples.

³ Trees determined to be historic will require replacement with either an existing adjacent tree or nursery stock. The replacement tree should exist or be installed as close as possible to the stump location (see *Guide to Replacing Historic Trees in the Landscape*).

⁴ See Programmatic Agreement for Weir Farm National Historic Site.

⁵ NPS 10-21A pesticide use requests should be approved prior to the application of any pesticide with an EPA Registration Number. Consult with the Regional IPM Coordinator for recommendations regarding herbicide/pesticide uses.

Field Edge Management

Preserve and maintain remaining specimen vegetation

- ❖ Prune specimen trees to improve structure, health, and vigor;
- ❖ Provide protection (when necessary) to young trees identified as future replacements for deteriorated specimen trees.

Dispose of debris from removals

- ❖ Pile debris in locations out of immediate public view;
- ❖ Burn piles of brush in fall and winter or contract tree service to chip brush and dispose off-site.⁶

Vegetation Management Strategy II (SII)

The second vegetation management strategy requires a moderate amount of planning and effort. This strategy can be applied to field edges that are located in remote areas, out of immediate public view, where the intent is to reclaim and maintain an aesthetic field edge similar to those described as requiring level SI reclamation efforts. These edges are often rocky and typically have multiple layers of plant growth that needs to be addressed. However, due to their somewhat remote locations, these field edges are not a priority for reclamation. An example is at the bottom of the field west and southwest of the Burlingham barn adjoining The Nature Conservancy's Weir Preserve.

Field Edge Reclamation Procedures

Remove invasive vegetation

- ❖ Mechanically remove invasive vegetation using a weed wrench, shovel, axe and/or chain saw (if possible);
- ❖ Chemically remove invasive vegetation using a systemic herbicide, *Roundup* or *Garlon*, or non-systemic, *Brush-B-Gone*, by following application procedures outlined on label (if mechanical procedures are not possible - see appendices for herbicide specifications)⁷

Remove diseased or dead trees

- ❖ Mechanically remove diseased or dead trees 4-10" caliper using standard sectional drop procedures (see appendices)
- ❖ Mechanically remove diseased or dead trees greater than 10" caliper using standard sectional-drop procedures (see appendices)
- ❖ Remove any large debris, such as downed limbs, from field edge.

Remove successional vegetation growth

- ❖ Mechanically remove small saplings (under 6" caliper) using a chain saw;
- ❖ Apply a systemic herbicide, *Roundup* or *Garlon*, or non-systemic, *Brush-B-Gone*, to stems and trunks by painting the chemical on with a paint brush to prevent resprouting (see appendices for herbicide specifications).⁸

Preserve and maintain remaining specimen vegetation

- ❖ Lightly prune or thin remaining trees to promote plant health and vigor.

Dispose of debris from removals

- ❖ Pile debris in locations out of immediate public view;
- ❖ Burn piles of brush in fall and winter or contract tree service to chip brush and dispose off-site.⁹

⁶ Burning remains the most economically feasible alternative for the disposal of accumulated brush. Notify Ridgefield and Wilton town officials and NPS Fire Management oversight staff prior to any burning on-site. Weather conditions must be conducive for burning and are typically favorable during fall and winter months. At all times, be sure to monitor wind and drought conditions prior to burning.

⁷ NPS 10-21A pesticide use requests should be approved prior to the application of any pesticide with an EPA Registration Number. Consult with the Regional IPM Coordinator for recommendations regarding herbicide/pesticide uses.

⁸ Ibid.

⁹ Burning remains the most economically feasible alternative for the disposal of accumulated brush. Notify Ridgefield and Wilton town officials and NPS Fire Management oversight staff prior to any burning on-site. Weather conditions must be conducive for burning and are typically favorable during fall and winter months. At all times, be sure to monitor wind and drought conditions prior to burning.

Field Edge Management

Vegetation Management Strategy III (SII)

The third vegetation management strategy requires the least amount of planning and effort. This strategy can be applied to field edges where the intent is to screen noise and views from Pelham Lane, Nod Hill Road, or neighboring properties. The basic strategy is to maintain the existing plant material in good health to optimize its effectiveness as a visual screen and audio barrier. The vegetation growth at the north property boundary of the Weir Complex, along the stonewall, is an example of where this strategy might be used.

Field Edge Reclamation Procedures

Remove invasive vegetation

- ❖ Mechanically remove invasive vegetation using a weed wrench, shovel, axe and/or chain saw (if possible);
- ❖ Chemically remove invasive vegetation using a systemic herbicide, *Roundup* or *Garlon*, or non-systemic, *Brush-B-Gone*, by following application procedures outlined on label (if mechanical procedures are not possible - *see appendices for herbicide specifications*).¹⁰

Remove diseased or dead trees

- ❖ Mechanically remove diseased or dead trees 4-10" caliper using standard sectional drop procedures (*see appendices*);
- ❖ Mechanically remove diseased or dead trees greater than 10" caliper using standard sectional-drop procedures (*see appendices*);
- ❖ Remove any large debris, such as downed limbs, from field edges.

Preserve and maintain remaining specimen vegetation

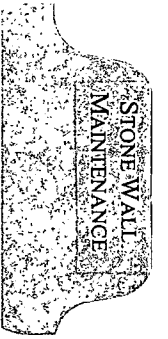
- ❖ Selectively prune remaining trees to promote plant health and vigor (if necessary) without affecting their ability to function as a screen.

Dispose of debris from removals

- ❖ Pile debris in locations out of immediate public view;
- ❖ Burn piles of brush in fall and winter.¹¹

¹⁰ NPS 10-21A pesticide use requests should be approved prior to the application of any pesticide with an EPA Registration Number. Consult with the Regional IPM Coordinator for recommendations regarding herbicide/pesticide uses.

¹¹ Burning remains the most economically feasible alternative for the disposal of accumulated brush. Notify Ridgefield and Wilton town officials prior to any burning on-site. Weather conditions must be conducive for burning and are typically favorable during fall and winter months. At all times, be sure to monitor wind and drought conditions prior to burning.

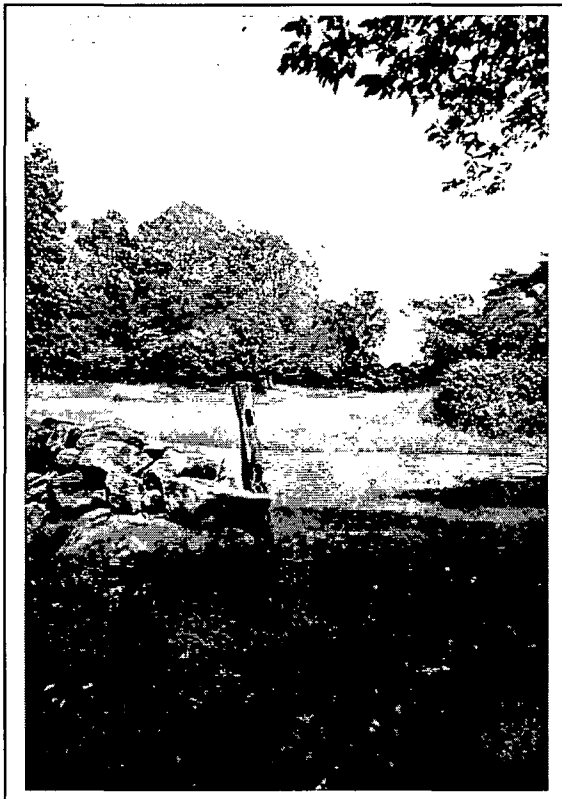


Stone Wall Maintenance

Historic Appearance/Intent

The Weir Farm National Historic Site Cultural Landscape Report (Volumes 1 and 2) identifies three distinct types of stone walls within its boundaries which contribute to the historic character of the property. The three types are as follows:

1. The first, a "thrown" wall consists of irregularly shaped fieldstones roughly piled up in rows at the edges of fields. These walls are typically 3' high and 1-4' wide. These walls do not have a foundation and thus are susceptible to frost heaving resulting in fallen or misplaced stones.
2. The second type features a series of regularly shaped coping stones along the top course resulting in a more formal appearance.
3. The third type of stone wall consists of two parallel outer walls with a rubble and stone infill. These walls are between 3-4' high, wide at the base, and narrower at the top. This wall has a formal appearance and, because it is built with a deep foundation, holds up well over time.



Barways, or gaps, made in the walls so that wagons and animals could pass between fields, are common to all three types of walls at Weir Farm. The barways typically have 1-2 squared-off and stacked fieldstone boulders. Horseshoes are fastened to posts that hold two split rails to form a barrier.

Goals of Stone Wall Maintenance Program

1. Preserve and protect three types of stone walls in their original character and construction.
2. Repair and rehabilitate walls as needed or every 2 years.
3. Keep base of walls in public view free of debris.
4. Maintain site lines along and across walls.

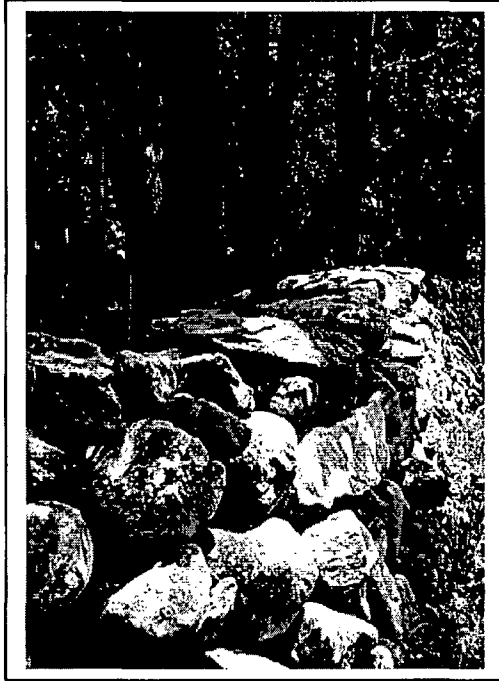
Existing Conditions

1. The "thrown" walls throughout the site are in fair condition. These walls require a higher frequency of maintenance because they are susceptible to frost heave, they do not have a foundation, and they do not have small stones in the voids between large stones to provide increased stabilization. Priority should be given to the upkeep and repair of only those thrown walls located in high visibility use areas.
2. Walls with coping stones located on the eastside of Nod Hill Road across from the Burlingham House and south of the parking lot need extensive work. Many of the coping stones have fallen off the top. In several locations, the wall foundation has buckled and needs to be repaired. The coping-capped walls on both sides of the

granite steps leading to the Truant's Field is in good condition. One 4' section is bowed out and needs to be re-aligned. The coping-capped wall across Nod Hill Road from the Weir Barn is in poor condition. Many of the stones have fallen into the field below. Some of the ground has slumped above the wall as a result of drainage from Nod Hill Road and will need to be filled in to stabilize upper portions of the wall.

3. The infill walls were built by the Knoche family between 1931 and 1940 (see *Cultural Landscape Report for Weir Farm National Historic Site Volume II, pages 54-56*). These walls are generally intact. The biggest maintenance need is replacing stones that are taken out by visitors or have fallen by natural means.

Stone Wall Maintenance



Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

General Maintenance Guidelines

For the most part, the three types of stone walls at Weir Farm require similar maintenance techniques to ensure their preservation. The following steps outline a cyclic maintenance program, which must be implemented in order to preserve the walls in good condition. Maintenance activities or techniques unique to a specific wall type are identified as well.

Photodocument existing condition

- ❖ A series of photographs should be taken on an annual basis, documenting the existing condition of the stone walls in order to continue ongoing documentation of the evolution of the landscape and its character-defining features.
- ❖ In particular, photo documentation of significant damage or deterioration of walls prior to stabilization and repair should be completed for the preservation record.

Monitor condition of stone walls

- ❖ Perform inspection of stone walls once each year to identify fallen stones, hazardous conditions, damage, and deterioration.
- ❖ Park staff should monitor and deter visitors from climbing on and over the stone walls to diminish the possibility of loose stones and damage.

Remove undesirable vines, herbaceous material and debris from on and around walls

- ❖ Using weed wrench or shovel, remove invasive vines and herbaceous material growing on or within 3' of either side of walls to limit damage potential of growing roots and stems.
- ❖ Rake out and remove accumulated leaves and organic debris from the base of the walls.
- ❖ Run over and collect majority of debris with mower.
- ❖ Return a thin coat of debris along wall to inhibit weed seed germination and invasive weed establishment.

Remove trees from base of walls

- ❖ Identify and flag "seedling" trees (less than 12" DBH) that are within 2' of stone walls.
- ❖ Evaluate condition of seedling tree for health, vigor, and form.
- ❖ Evaluate surrounding trees: If historic tree (over 12" DBH) is nearby and in good condition, remove flagged seedling. If historic tree (over 12" DBH) is nearby and in poor condition or is declining, maintain seedling in good condition and protect and preserve historic tree for as long as possible (see *Preservation Maintenance Plan: Feature Inventory and Information Manual*, Appendix A for proper tree maintenance recommendations).

Replace fallen or missing stones

- ❖ Where stones are noticeably missing, look on ground surface on both sides of wall for original stones. When original stones are found, replace them in original location. When missing stones are not found, collect stones similar in shape, color, and texture from woodlands to serve as replacement stones and place them where originals are missing.

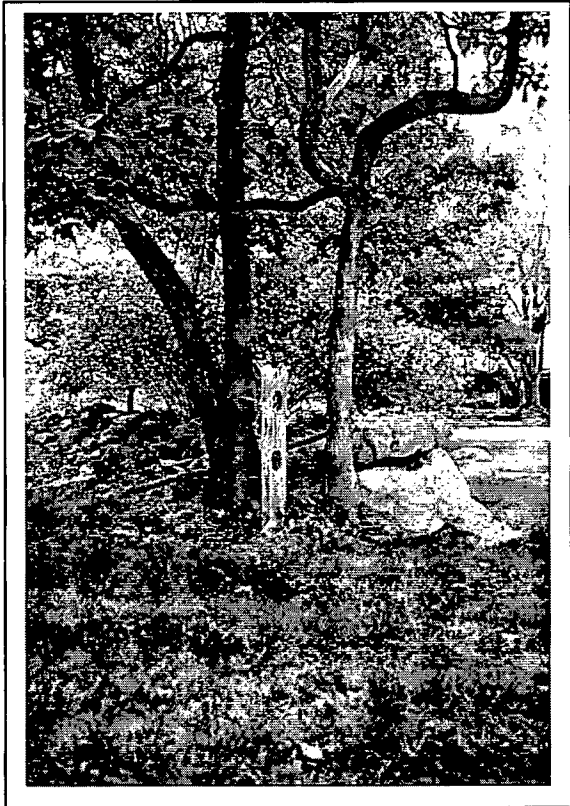
For walls with coping stones:

- ❖ Keep coping stones as level as possible.

Stone Wall Maintenance

For walls with infill:

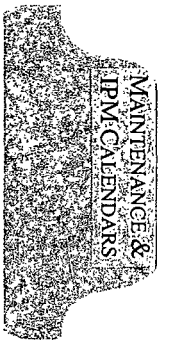
- ❖ Place fallen stones back in obvious holes in face of wall or in middle infill area.



Photograph courtesy Olmsted Center for Landscape Preservation, 1998.

For Barways:

- ❖ Realign posts and rails so that they are square and stable.
- ❖ Posts and rails should be locust or red cedar wood. If posts and/or rails are deteriorated beyond use, they should be replaced in-kind.
- ❖ Remove organic debris layer at base of post to look for any fallen horseshoes. Missing horseshoes should be replaced in-kind with locally manufactured shoes.
- ❖ Four to five barways should be stabilized each year so that most barways will be stabilized within 10 years.



Grounds Maintenance Quick Reference Calendar

[illegible]

Grounds Maintenance Quick Reference Calendar

[illegible]

Grounds Maintenance Monthly Calendar

January & February

- ❖ Prune specimen trees (dormant, structural, and hazardous)
- ❖ Provide trunk protection to specimen trees
- ❖ Remove snow loads from shrubs (when necessary)
- ❖ Check perennials for heaving
- ❖ Remove trees larger than 12" dbh from field edges
- ❖ Photodocument existing conditions of stone walls
- ❖ Monitor condition of stone walls
- ❖ Remove trees from base of stone walls

March

- ❖ Prune specimen trees (dormant, structural, and hazardous)
- ❖ Provide trunk protection to specimen trees
- ❖ Apply dormant oil to appropriate specimen trees
- ❖ Rejuvenate non-flowering shrubs
- ❖ Remove snow loads from shrubs (when necessary)
- ❖ Apply organic fertilizer to planting beds
- ❖ Mulch planting beds
- ❖ Check perennials for heaving
- ❖ Overseed/seed lawns where necessary
- ❖ Mow pastures
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Remove invasive/pest plants using shovel or weed wrench
- ❖ Remove tree and shrub seedlings from field edges
- ❖ Remove trees from base of stone walls
- ❖ Replace fallen or missing stones
- ❖ Start annual seeds in greenhouse for gardens

April

- ❖ Plant replacement trees and shrubs
- ❖ Provide trunk protection to specimen trees
- ❖ Apply dormant oil to appropriate specimen trees
- ❖ Apply dormant oil to fruit trees *BEFORE leaf break*
- ❖ Rejuvenate non-flowering shrubs
- ❖ Prune spring flowering shrubs after flowering
- ❖ Weed planting beds
- ❖ Mulch planting beds
- ❖ Mow domestic lawns (1x/week)
- ❖ Overseed/seed lawns where necessary
- ❖ Dethatch lawns
- ❖ Core aerate lawns where necessary
- ❖ Mow pastures
- ❖ Sharpen mower blades (1-2x/month)

Grounds Maintenance Monthly Calendar

April (continued)

- ❖ Photodocument existing invasive/pest plant problems
- ❖ Remove invasive/pest plants using shovel or weed wrench
- ❖ Apply systemic herbicide to invasive/pest plants (and remove) if necessary
- ❖ Photodocument existing conditions of field edges
- ❖ Remove tree and shrub seedlings from field edges
- ❖ Remove undesirable vegetation from around stone walls
- ❖ Remove trees from base of stone walls
- ❖ Clean greenhouse windows (inside and outside) with ammonia

May

- ❖ Plant replacement trees and shrubs
- ❖ Provide trunk protection to specimen trees
- ❖ Prune spring flowering shrubs after flowering
- ❖ Prune boxwood (*Buxus sp.*) shrubs
- ❖ Fertilize broadleaf evergreens
- ❖ Weed planting beds
- ❖ Mow domestic lawns (1x/week)
- ❖ Fertilize lawns
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Monitor invasive/pest plant growth/presence
- ❖ Apply systemic herbicide to invasive/pest plants and remove (if necessary)
- ❖ Remove undesirable vegetation from around stone walls
- ❖ Remove trees from base of stone walls
- ❖ Bring Fuschias outside (from winter storage in greenhouse)

June

- ❖ Provide trunk protection to specimen trees
- ❖ Prune spring flowering shrubs after flowering
- ❖ Prune/trim privet
- ❖ Train wisteria and trumpet vine
- ❖ Fertilize broadleaf evergreens
- ❖ Weed planting beds
- ❖ Mow domestic lawns (1x/week)
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Apply systemic herbicide to invasive/pest plants and remove (if necessary)
- ❖ Remove trees from base of stone walls

Weir Farm National Historic Site

Preservation Maintenance Plan

Grounds Maintenance Monthly Calendar

July

- ❖ Provide trunk protection to specimen trees
- ❖ Train wisteria and trumpet vine
- ❖ Weed planting beds
- ❖ Mow domestic lawns (1x/week)
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Apply systemic herbicide to invasive/pest plants and remove (if necessary)
- ❖ Remove trees from base of stone walls

August

- ❖ Provide trunk protection to specimen trees
- ❖ Train wisteria and trumpet vine
- ❖ Weed planting beds
- ❖ Mow domestic lawns (1x/week)
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Apply systemic herbicide to invasive/pest plants and remove (if necessary)
- ❖ Remove trees from base of stone walls

September

- ❖ Plant replacement trees and shrubs
- ❖ Provide trunk protection to specimen trees
- ❖ Train wisteria and trumpet vine
- ❖ Weed planting beds
- ❖ Plant spring flowering bulbs
- ❖ Mow domestic lawns (1x/week)
- ❖ Overseed/seed lawns where necessary
- ❖ Dethatch lawns
- ❖ Fertilize lawns
- ❖ Core aerate lawns where necessary
- ❖ Apply broadleaf weed control to domestic lawns
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Photodocument existing invasive/pest plant problems
- ❖ Apply systemic herbicide to invasive/pest plants (and remove) if necessary
- ❖ Remove trees from base of stone walls

October

- ❖ Plant replacement trees and shrubs
- ❖ Provide trunk protection to specimen trees

Grounds Maintenance Monthly Calendar

October (continued)

- ❖ Fertilize specimen trees
- ❖ Weed planting beds
- ❖ Plant spring flowering bulbs
- ❖ Mow domestic lawns (1x/week)
- ❖ Sharpen mower blades (1-2x/month)
- ❖ Apply broadleaf weed control to domestic lawns
- ❖ Remove invasive/pest plants using shovel or weed wrench
- ❖ Remove tree and shrub seedlings from field edges
- ❖ Remove undesirable vegetation from around stone walls
- ❖ Remove trees from base of stone walls
- ❖ Replace fallen or missing stones
- ❖ Cut back geraniums and terrace pots and bring inside greenhouse for winter storage

November

- ❖ Provide trunk protection to specimen trees
- ❖ Apply deer repellent where necessary
- ❖ Apply fertilizer to planting beds¹
- ❖ Rake and chop leaves and return to planting beds for winter protection²
- ❖ Plant spring flowering bulbs
- ❖ Clean lawn equipment
- ❖ Remove invasive/pest plants using shovel or weed wrench
- ❖ Remove tree and shrub seedlings from field edges
- ❖ Remove trees larger than 12" dbh from field edges
- ❖ Monitor condition of stone walls
- ❖ Remove undesirable vegetation from around stone walls
- ❖ Remove trees from base of stone walls
- ❖ Replace fallen or missing stones
- ❖ Clean greenhouse benches with Clorox

December

- ❖ Provide trunk protection to specimen trees
- ❖ Prune broad-leaved trees/shrubs for holiday greens
- ❖ Remove snow loads from shrubs (when necessary)
- ❖ Provide winter protection for tender perennials
- ❖ Remove trees larger than 12" dbh from field edges
- ❖ Monitor condition of stone walls
- ❖ Remove trees from base of stone walls

¹ Organic fertilizers require warm temperatures for optimum effectiveness therefore their use is not recommended in November. Be aware that organic fertilizers may also attract rodents.

² The use of chopped leaves for mulch is acceptable however, be aware that some leaves will create a dense mat when wet and will create a poor drainage situation which could result in plant decline.



Weir Farm National Historic Site

Integrated Pest Management (IPM) Quick Reference Calendar

Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GENERAL												
Apply for Web-based pesticide use approvals												
Submit annual pesticide application records												
SPECIMEN TREES												
Apply preventative injection of <i>Merit</i> to Weir hemlock												
FRUIT TREES												
Monitor for deer, rabbit, or vole damage												
Apply <i>Ropel</i> if necessary												
Install fence rings around plants if necessary												
Apply <i>Sunspray</i> dormant oil before leaf break												
GREENHOUSE												
Monitor of scale, mealybugs, and white flies												
Apply soap if necessary												
Remove & dispose of infested specimens												
SHRUBS & PERENNIALS												
Monitor rhododendron & kalmia foliage for black vine weevil												
Apply <i>Orthene</i> or <i>Dursban</i> if necessary												
Begin weekly application of <i>Bobbex</i> on daylilies												
Spread <i>Irish Spring</i> soap shavings around perennials if necessary												
Monitor boxwoods for psyllids												
Apply <i>Orthene</i> or <i>Dursban</i> if necessary												
Monitor pieris for lacebug												
Apply <i>Malathion</i> if necessary												
Monitor iris for stem/rhizome borer												
Manually eliminate borers by crushing them in stem												
Monitor roses for black spot												
Apply <i>Soap-Shield</i> fungicidal soap if necessary												
Monitor hollyhocks & phlox for rust and mildew												
Remove & destroy first leaves showing evidence of rust												
Apply <i>Zineb</i> if necessary												
Monitor hollyhocks & roses for Japanese beetle												
Remove beetles manually or use <i>Neem</i> if necessary												
Apply Deer-Pro repellent to woody shrubs*												

* Susceptible shrubs include Rhododendron, privet, mountain laurel, and hemlock. Contract with local nursery (Redding Nursery) for application.

Integrated Pest Management (IPM) Quick Reference Calendar

[illegible]

Integrated Pest Management (IPM) Monthly Calendar

* NPS 10-21A pesticide use requests must be approved prior to the application of any pesticide with and EPA Registration Number. Accurate application rates and descriptions must be recorded and, together with the NPS 10-21A approval, submitted at year end to satisfy legal requirements under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), NPS policy, and State of Connecticut regulations. All records should be kept for at least 5 years. For further information, see the forthcoming WEFA Integrated Pest Management Plan.

January, February & March

- ❖ Apply for Web-based pesticide use approvals.
- ❖ Monitor property for deer, rabbit, and vole damage. Keep mulch pulled back from tree and shrubs main stems. If burrowing or slight damage is detected, spray with *Ropel* brand repellent (mixed according to label recommendations). Or, encircle effected plants with 18" high, fine-mesh wire fence sunk 2" below ground and 4" away from stems.
- ❖ Monitor greenhouse for scale, mealybugs, and white flies (apply soap if necessary). Remove and dispose of any specimens with high population levels.

April

- ❖ Apply organic crabgrass preventative (*W.O.W*) on Secret and Sunken Gardens turf panels.
- ❖ Apply *Sunspray* dormant oil on fruit trees according to "Small Fruit Growing" guidelines.
- ❖ Monitor Rhododendron and Kalmia foliage for black vine weevil presence (apply *Orthene* or *Dursban* if necessary).
- ❖ Begin weekly monitoring for moles in Secret and Sunken gardens. Apply *Mole-Med* repellent, if necessary, for two month protection. Evaluate need for white grub control in mole infested turf.
- ❖ Begin weekly application of *Bobbex* as deer repellent on Burlingham drive and Nod Hill Road daylilies until finish of bloom period.
- ❖ Shave and spread *Irish Spring* soap around susceptible perennials as deer repellent (as necessary).

May

- ❖ Monitor boxwood for psyllids (apply *Orthene* or *Dursban* if necessary).
- ❖ Monitor *Pieris* for lacebug. (apply *Malathion* 2x, 10 apart if necessary).
- ❖ Monitor Iris for stem/rhizome borer. Crush borers inside stem by squeezing if presence detected.
- ❖ Apply preventative injection of *Merit* to Weir hemlock to deter woolly hemlock adelgid.
- ❖ Perform annual inventory of invasive plants.

June

- ❖ Begin spot spraying of invasive plants with *Roundup* (poison ivy, black swallowwort and bittersweet).
- ❖ Monitor roses for black spot. Use *Soap-Shield* fungicidal soap as necessary.

July

- ❖ Monitor hollyhocks and Phlox for rust and mildew. Remove and destroy the first leaves on which rust is evident (apply *Zineb* if necessary).

Integrated Pest Management (IPM) Monthly Calendar

August

- ❖ Monitor hollyhocks and roses for Japanese beetle (remove beetles manually or use *Neem* dust if necessary)

November

- ❖ Contract with local nursery (Redding Nursery) to apply *Deer-Pro* deer repellent on Rhododendrons, privet, mountain laurel, hemlocks.

December

- ❖ Submit annual pesticide application records to Connecticut Department of Environmental Protection.

APPENDICES

APPENDIX A: Plant Replacement Sources

Weir Farm National Historic Site
List of Plant Sources

Name of Nursery Address	Telephone #: FAX#:	Plant Material Available	Source Code*
Bluestone Perennials 7211 Middle Ridge Rd. Madison, OH 44057	800-852-5243 216-428-7198	perennials	BI
Cricket Hill Garden 670 Walnut Hill Road Thomaston, CT 06787	860-283-1042 860-283-5508	tree peonies	CH
Completely Clematis Specialty Nursery 217 Argilla Road Ipswich, MA 01938	978-356-3197 978-356-3197	Clematis	CI
Perennial Gardens by Donna Donna Clark, 264 N. Salem Rd., Ridgefield, CT 06877	203-431-0730	perennials	DC
The Daffodil Mart 85 Broad Street Torrington, CT 06790-6668	800-all-bulb		DM
Donation from Wilton or Ridgefield Garden Club			Don
Existing existed in garden before rehab/restoration			Ex
Henry Leuthardt Nurseries Montauk Hwy., Box 666 East Moriches, NY 11940	516-878-1387	espaliers	HLN
Historic propagation from cutting, seed, or graft from historic plant			HP
Heirloom Old Garden Roses 24062 Riverside Dr., NE St. Paul, OR 97137	503-538-1576	roses	HR
Kurt Bluemel, Inc. 2740 Greene Lane Baldwin, MD 21013	301-557-7229	ornamental grasses	KB
Logee's Greenhouses 55 North Street Danielson, CT 06239	860-774-8038	greenhouse plants	LG

* A list of the plant materials in the Sunken Garden and Secret Garden with corresponding nursery source code follows this List of Plant Sources.

Weir Farm National Historic Site
List of Plant Sources

Name of Nursery Address	Telephone #: FAX#:	Plant Material Available	Source Code*
Milaeger's Gardens 4838 Douglas Ave. Racine, WI 53402-2498	414-639-2371	perennials	MG
Oliver Nurseries 1159 Bronson Road Fairfield, CT 06430	203-259-5609	trees/shrubs/alpine/perennials	OL
Princeton Nurseries P.O. Box 191 Princeton, NJ 08542	609-924-1776	trees/shrubs	PN
Royall River Roses Forevergreen Farm, 70 Gloucester Rd. North Yarmouth, ME 04097	207-829-5830		RR
Saunders Bros./Inc. 2508 Tye Brook Hwy. Piney River, VA 22964	804-277-5455 804-277-8010		SaB
Sunny Border Nursery 1709 Kensington Road P.O. Box 483 Kensington, CT	800-732-1627 860-828-9318	perennials	SB 06037
Town & Country Danbury Road Wilton, CT 06897	203-544-9266	shrubs, perennials	T&C
Thompson & Morgan P.O. Box 1308 Jackson, NJ 08527	201-363-2225	annual seeds	TM
Twombly's Nursery Barn Hill Rd. Monroe, CT	860-261-2133	trees/shrubs/per.	Tw
Wayside Gardens Hodges, SC 29695	800-845-1124	trees/shrubs/per.	Wa
White Flower Farm P.O. Box 50 Litchfield, CT 06779-0050	800-503-9624 860-4961418	trees/shrubs/per.	WFF
Young's Nurseries Danbury Road Wilton, CT 06897	762-5511	trees/shrubs/per.	Y

* A list of the plant materials in the Sunken Garden and Secret Garden with corresponding nursery source code follows this List of Plant Sources.

Weir Farm National Historic Site

Sunken Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
--------------------------------	-------------------------

Aster <i>Aster nova-angliae</i> 'Purple Dome'	SB
--	----

Astilbe <i>Astilbe</i>	Ex
---------------------------	----

Astilbe <i>Astilbe</i> x 'Queen of Holland'	SB
--	----

Astilbe <i>Astilbe chinensis</i> 'Superba'	SB
---	----

Astilbe <i>Astilbe</i> 'Bridal Veil'	Don
---	-----

Astilbe <i>Astilbe</i> 'Rhineland'	Don
---------------------------------------	-----

Bearded Iris <i>Iris germanica</i> 'St. Loius Blues'	SB
---	----

Bearded Iris <i>Iris g.</i> 'white'	SB
--	----

Bearded Iris <i>Iris g.</i> 'yellow'	SB
---	----

Bleeding Heart <i>Dicentra formosa</i> 'Langtrees'	SB
---	----

Bleeding Heart <i>Dicentra spectabilis</i>	Ex
---	----

Bleeding Heart <i>Dicentra spectabilis</i>	Don
---	-----

Bloodroot <i>Sanguinaria canadensis</i>	Ex
--	----

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Sunken Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
Boxwood <i>Buxus sempervirens</i>	Ex
Clematis <i>Clematis heracleifolia</i> 'Davidiana'	CI
Columbine <i>Aquilegia vulgaris</i>	SB
Columnar Box <i>Buxus sempervirens</i> 'Fastigiata'	SaB
Crocus <i>Crocus chrysanthus</i> 'Snow Bunting'	DM
Daffodil <i>Narcissus</i> 'Thalia'	DM
Daffodil <i>Narcissus</i> 'Tresamble'	DM
Daffodil <i>Narcissus</i> 'Tuesday's Child'	DM
Daffodil <i>Narcissus</i> 'Jack Snipe'	DM
Daffodil <i>Tulipa clusiana</i> 'Cynthia'	DM
Dwarf Bleeding Heart <i>Dicentra formosa</i> 'Langtrees'	SB
English Primrose <i>Primula vulgaris</i>	Ex
English Primrose <i>Primula</i> v. 'Dreamer pastel mix'	SB

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Sunken Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
--------------------------------	-------------------------

European Ginger <i>Asarum europeum</i>	Ex
---	----

European Ginger <i>Asarum europeum</i>	Ex Don
---	--------

Exbury Azalea <i>Rhododendron</i>	Ex
--------------------------------------	----

Flowering onion <i>Allium caeruleum</i>	DM
--	----

Foamflower <i>Tiarella wherryi</i>	SB
---------------------------------------	----

Forget-Me-Not <i>Brunnera macrophylla</i>	Ex
--	----

Foxglove <i>Digitalis grandiflora</i>	T&C
--	-----

Globeflower <i>Trollius x cultorum 'Lemon Queen'</i>	SB
---	----

Goatsbeard <i>Aruncus dioicus</i>	T&C
--------------------------------------	-----

Jack-in-the-pulpit <i>Arisaema triphyllum</i>	Ex
--	----

Jacob's Ladder <i>Polemonium caeruleum</i>	Don
---	-----

Japanese Painted Fern <i>Athyrium niponicum 'Pictum'</i>	SB Don
---	--------

Lenten Rose <i>Helleborus orientalis</i>	Don
---	-----

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Sunken Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
Lungwort <i>Pulmonaria saccharata</i> 'Janet Fiske'	Don
Pulmonaria <i>Pulmonaria saccharata</i>	Ex
Siberian Iris <i>Iris sibirica</i>	Ex
Siberian Iris <i>Iris sibirica</i> 'Silver Edge'	Don
Snakeroot <i>Cimicifuga racemosa</i> var. <i>cordifolia</i>	SB
Sweet William <i>Dianthus barbatus</i> 'Double Tall Mix'	SB
Tree Peony <i>Paeonia suffruticosa</i>	Ex
Tree Peony <i>Paeonia</i> s. 'Peach Blossom Spring'	CH
Tree Peony <i>Paeonia</i> s. 'Yao's Yellow'	CH

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Secret Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
Mountain pinks <i>Phlox subulata</i> 'White Delight'	DC
Mountain pinks <i>Phlox subulata</i> 'Blue Emerald'	DC
Pink moss rose <i>Rosa x centifolia muscosa</i> 'Old Moss Pink'	Wa
White moss rose <i>Rosa x centifolia muscosa</i> 'Salet'	Wa
Rose <i>Rosa x centifolia muscosa</i> 'White Shaler'	WY
Red moss rose <i>Rosa x centifolia muscosa</i> 'Henri Martin'	RR
Rose <i>Rosa</i> 'Dresden Doll'	HR
Sedum <i>Sedum spectabile</i> 'Autumn Joy'	SB
Sedum <i>Sedum spectabile</i> 'Ruby Glow'	Don
Sedum <i>Sedum spurium</i> 'Tricolor'	SB
Yucca <i>Yucca filamentosa</i>	SB
Dame's rocket <i>Hesperis matronalis</i>	Don
Foxglove <i>Digitalis purpurea</i>	Don
Bleeding heart <i>Dicentra eximia</i>	Don

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Secret Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
Dwarf Cosmos <i>Cosmos bipinnatus</i> 'Sonata Dwarf Mixed'	RGC
Sneezeweed <i>Helenium autumnale</i> 'Butterball'	Don
Daylily <i>Heemerocallis</i> x 'Hyperion'	DC
Daylily <i>Heemerocallis</i> x 'Lemondrop'	Pi
Daylily <i>Heemerocallis</i> x 'Mary Todd'	Don
Siberian Iris <i>Iris siberica</i>	Don
Japanese roof Iris <i>Iris tectorum</i>	Don
Madonna lily <i>Lilium candidum</i>	WFF
Asiatic lily <i>Lilium</i> x 'Connecticut King'	SB
Asiatic lily <i>Lilium</i> x 'Mont Blanc'	SB
Asiatic lily <i>Lilium</i> x 'Parisien'	SB
Honeysuckle <i>Lonicera japonica</i>	Wa
Peony <i>Paeonia lactiflora</i> 'Festiva Maxima'	SB
Peony <i>Paeonia lactiflora</i> 'Doris Cooper'	WFF

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Secret Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
Summer Phlox <i>Phlox paniculata</i> 'White Admiral'	SB
Summer Phlox <i>Phlox paniculata</i> 'David'	DC
Phlox <i>Phlox carolina</i> 'Miss Lingard'	SB
Phlox <i>Phlox carolina</i> 'Rosalinde'	SB
Yarrow <i>Achillea millefolium</i>	Ex
Hollyhock <i>Alcea rosea</i> 'Indian Spring'	RGC
New York aster <i>Aster novae-belgii</i> 'Bonningdale White'	SB
Boxwood <i>Buxus sempervirens</i>	HP
Clematis <i>Clematis</i> x <i>Jackmani</i>	SB
Clematis <i>Clematis paniculata</i>	DC
Lily-of-the-Valley <i>Convallaria majalis</i>	Don
Thread-leaf Coreopsis <i>Coreopsis verticillata</i> 'Moonbeam'	SB
New England aster <i>Aster novae-angliae</i>	MG
New England aster <i>Aster</i> 'Hella Lacy'	WFF

*Replacement source codes correspond with nurseries listed on the previous pages.

Weir Farm National Historic Site

Secret Garden Plant List and Replacement Sources

Common Name Scientific Name	Replacement Source Code
New England Aster <i>Aster novae-angliae</i> 'Alma Patasche'	WFF
Aster <i>Aster</i> 'September Ruby'	WFF
Delphinium <i>Delphinium elatum</i> 'Connecticut Yankee'	SB
Baby's- breath <i>Gypsophila paniculata</i> 'Bristol Fairy'	SB
Creeping baby's- breath <i>Gypsophila repens</i>	Don
Sneezeweed <i>Helenium autumnale</i> 'Sunball'	WFF

*Replacement source codes correspond with nurseries listed on the previous pages.

APPENDIX B: Product Information



PRODUCT HELP

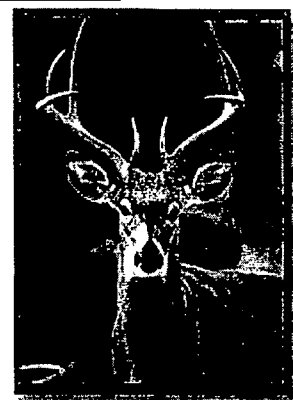
Plant Growth Stimulant Products



DEER PROBLEMS? While BOBBEX stimulates plant growth and vitality, it avery desirable fringe benefit. This benefit can reward users with a very high degree of protection against damage toornamentals and flowers by thebrowsing of deer which are turned away by the odor and taste of BOBBEX.

There are many reasons for increased deer predation inrecent years, among them: decreased hunting and gun control, some land owners encouraging deer presence, suburban development, abandoned farming operations, deer nutritional requirements and homeowner planting of deer delicacies.

Browsing habits and foraging routes will be effectively interrupted by the systematic year-round application of BOBBEX as aplant nutrient formulation.

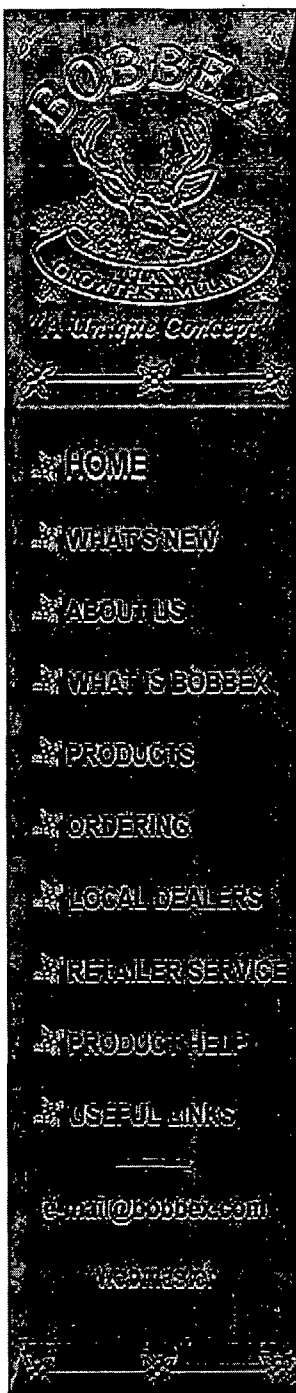


FOOD PLANTS? BOBBEX, Inc.plant nutrient products are not for use on food plants or for use in vegetable gardening.

WHAT ABOUT SAFETY? BOBBEX, Inc. plant nutrient products are environmentally safe, harmless to wildlife (including aquatic species), harmless to humans and pets, has no petrochemical or synthetic components, and is made from all natural and recycled organic ingredients.

WHEN SHOULD BOBBEX BE APPLIED? Begin by spraying in the spring when plants are approximately one-half inch out of the ground. During this period of rapid growth, spray the entire plant every 7 to 14 days or, for every 3 to 5 inches of new growth, particularly buds and flowers. During the spring and early summer only, use BOBBEX concentrate in a mix ratio of 1 part concentrate to 8 parts water.

During the the summer, fall and winter months spray with



reduced frequency using the concentrate in a mix ratio of 1 part concentrate to 5.5 parts water.

BOBBEX should not be applied to plants when ambient temperatures exceed 85 degrees.

HOW SHOULD BOBBEX BE APPLIED? Spray lightly to run off, wetting both sides of plant foliage, including buds and flowers. Spray BOBBEX on dry plant surfaces and allow 4 to 6 hours drying time before rain, hosing, or irrigation.

CAN BOBBEX BE APPLIED TO BULBS ? BOBBEX can provide time released nutrition, vitality and discourage above-ground and underground predators at the same time. Begin by removing all loose and dried plant tissue around the bulb. Dip Bulb in undiluted concentrate before planting. Allow the bulb to soak in the concentrate for 3 to five minutes. Remove bulb from concentrate and allow to air dry until no longer tacky.



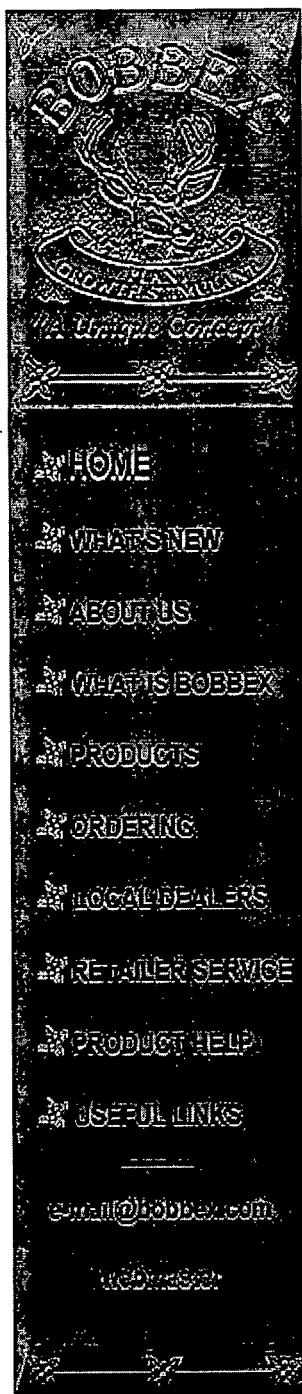
[HOME](#) | [WHAT'S NEW](#) | [ABOUT US](#)

[WHAT IS BOBBEX](#) | [PRODUCTS](#) | [ORDERING](#) | [LOCAL DEALERS](#) | [RETAILER SERVICE](#)

[PRODUCT HELP](#) | [USEFUL LINKS](#)

BOBBEXTM and BOBBEX-RTM are trademarks of BOBBEX, Inc.

©1998 Bobbex, Inc. All rights reserved.



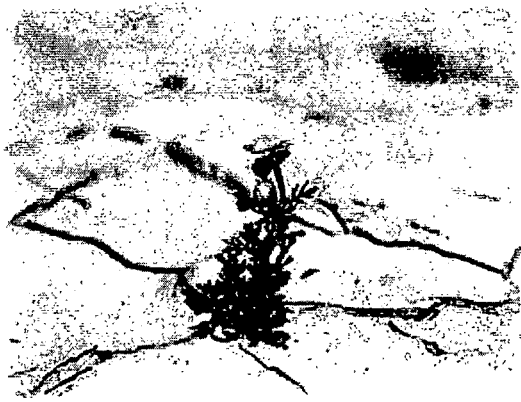
ABOUT US

Plant Growth Stimulant Products



BOBBEX, Inc. is a family owned company, building on the old-world knowledge of our predecessors and innovations of today's generations. Bob Ecsedy founded BOBBEX, Inc. with very few objectives; create a unique product that could help commercial and recreational growers improve the health and vitality of their plantings, make the product environmentally safe, ensure an organic approach to cultivation, and make sure the results would be so impressive that word of mouth would sell the product. He succeeded, and along the way a tremendous fringe benefit was realized; deer would not browse on plants that had been treated/sprayed with BOBBEX. Today, BOBBEX, Inc. creates BOBBEX and BOBBEX-R, plant growth stimulants that are the professional's choice and used throughout the country.

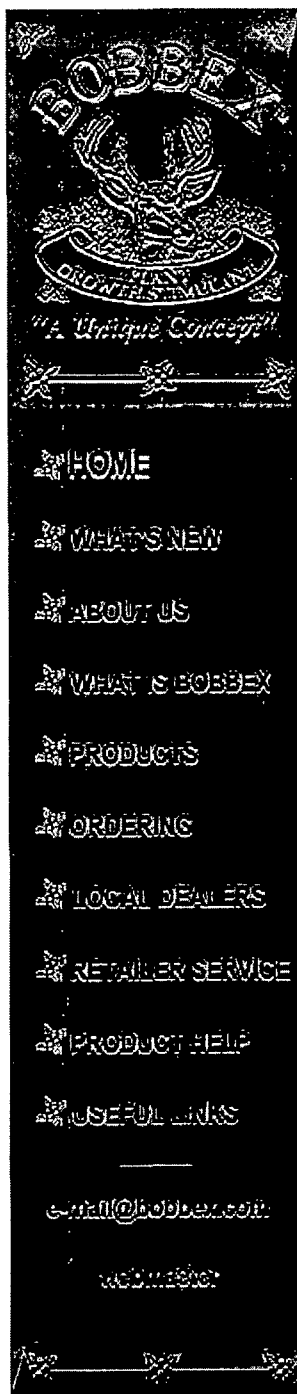
Quality, easy to use organic horticultural products are only half the success of BOBBEX, Inc. The other half is service. The company is family run and concerned about each customer it serves. With BOBBEX, Inc. products you get old fashioned quality and service!



Dear Friend:

If you're not satisfied with BOBBEX, Inc. products or services, I want to know about it!

Robert Ecsedy



WHAT IS BOBBEX

Plant Growth Stimulant Products



BOBBEX, Inc. products are nutritional sprays applied directly to the foliage of all plants, stimulating growth and vitality. **BOBBEX**, Inc. products provide a wide range of trace elements often lacking in exhausted and leached soils. **BOBBEX**, Inc. foliar sprays are used year round and provide a safe, non-burning, organic time-release coating to plant surfaces. As it slowly dissolves with rain and watering it encourages microbial activity in plant soils, resulting in healthier plants.

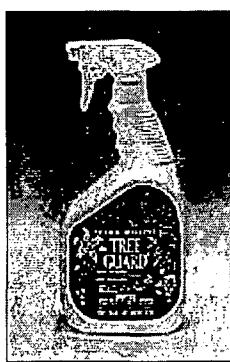
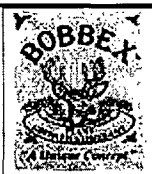
BOBBEX, Inc. products reduce stress brought on by late spring temperature dips and also reduces stress by hot day conditions in late summer. A very light residue is all that remains when it dries.

BOBBEX, Inc. plant growth stimulants supplement and enhance the performance of commercial fertilizers. **BOBBEX**, Inc. products can be used as part of an organic gardening program.

Original BOBBEX protects plants with a secondary benefit of protection against damage by the browsing of **deer** which find the odor and taste of **BOBBEX** foliar spray extremely offensive.



New BOBBEX-R is a unique formulation which protects plants with a secondary benefit of protection against damage by the browsing of **smaller four legged pesky herbivores** which find the odor and taste of **BOBBEX-R** spray extremely offensive.



DEER PROTECTION GUIDE

This guide to deer repelling is provided as a service to all gardeners. We are constantly looking for new and better ways to repel deer. This outline is put together with over twenty years of experience in protecting plant material from deer.

Many different consumer needs have been considered in making these recommendations. They are, ease of application, looks on the plant material after spraying plant material, frequency of application, organic versus chemical and last but not least, cost.

We have broken the year into the dormant season, in most area's of the country

Nov. Thru April .And the growing season May thru Oct.

Special instructions will be sent with order or discussed in store. All of these products are available in our Garden Center or by mail order.

Calendar

Dormant season Nov. Thru April

For Evergreens both broadleaf or needled

- * 1.) Longest lasting-*Thiram/ Wiltpruf* concentrate mix- leaves white residue on foliage
- * 2.) Looks on plant- *Tree guard* ready to use, water repellant-sprays on clear
- * 3.) Frequency of application- *Hinder/ Hot pepper wax*-needs re-application Jan.,Mar
- * 4.) Organic foliage spray- *Bobbex*- sprays on clear re-application Jan., Mar.

Growing season May Thru Oct.

For Evergreens Perennials Roses and Annuals

- * 1.)Organic dry fertilizer- *Milorganite* repels deer while it feeds your plants
- * 2.)Organic foliage spray- *Bobbex* feeds thru the foliage as it repels deer
- * 3.)Least expensive spray- *Hinder/ hot pepper wax* taste and smell repellant,

wax as sticker

*4.)Easiest premix- *Tree guard*- Sprays on clear, water repellant Ideal for annuals perennials and bulbs.

Product Price List

Bobbex	<u>Ready to Use, 32 oz.</u>	\$15.99
	<u>Concentrate, Qt, Makes 1½ gal.</u>	\$26.99
	<u>Concentrate, ½ gal. Makes 9 gal.</u>	\$52.99
Tree Guard	<u>32oz. Ready to use</u>	\$19.99
	<u>1gal. Ready to use</u>	\$39.99
	<u>2.5 gal. Ready to use packed two per case</u>	\$89.99
	Spotrete 10 lb. Makes 15 gal. of spray.	\$ 89.99
	Wilt pruf 1gal. Sticker for spotrete mix makes 6 gal.	\$ 51.99
	Hinder 32 oz. conc. makes 6 gal. of spray	\$ 13.99
	Hot pepper wax 16 oz. Conc. makes 8 gal. of spray sticker for hinder mixture	\$10.99

Shipping charges additional

Enter products of your choice on our order page and fax to 914.533.6865

For further questions call us at 1.914.533.6115

Visit us on the web at www.garden-shops.com

<u>Bird Feeders</u>	<u>Holland Bulbs</u>	<u>Deer Protection</u>	<u>Gift Shop</u>	<u>Roses</u>
<u>Home Page</u>	<u>Perennials</u>	<u>Lawncare</u>	<u>Order Now!</u>	<u>Map to Toms</u>

Toms Home & Garden

Nursery-Garden Center

Rte. 123 & East Street
(Smith Ridge Road) Vista, NY 10590

914-533-6115

FAX 914-533-6865

Send mail to Webmaster with questions or comments about this web site.

Copyright © 1997 Toms Home & Garden Nursery-Garden Center

Specimen Label

 Dow AgroSciences

Garlon[®] 4

Specialty Herbicide

*Trademark of Dow AgroSciences LLC

For the control of woody plants and broadleaf weeds on rights-of-way, industrial sites, non-crop areas, non-irrigation ditch banks, forests, and wildlife openings, including grazed areas on these sites.

Active Ingredient:

triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid, butoxyethyl ester.....61.6%

Inert Ingredients.....38.4%

Total.....100.0%

Contains petroleum distillates

Field Equivalent:

triclopyr - 44.3% - 4 lb/gal

EPA Reg. No. 62719-40

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

CAUTION PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Harmful If Swallowed, Inhaled, Or Absorbed Through Skin

Avoid contact with eyes, skin, or clothing. Avoid breathing mists or vapors. Avoid contamination of food.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selections chart.

WPS Uses: Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard (40 CFR Part 170) - In general, agricultural-plant uses are covered - must wear:

- Long-sleeved shirt and long pants

- Chemical-resistant gloves such as Barrier Lamine, Nitrile Rubber, Neoprene Rubber, or Viton
- Shoes plus socks

Non-WPS Uses: Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170) - In general, only agricultural-plant uses are covered by the WPS - must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid

If on skin: Flush skin with plenty of water. Get medical attention if irritation persists.

If swallowed: Do not induce vomiting. Call a physician.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Do not use or store near heat or open flame. Do not cut or weld container.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.

In case of emergency endangering health or the environment involving this product, call 1-800-992-6994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not use for manufacturing or formulating.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, or Viton
- Shoes plus socks

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

Storage: Store above 28°F or agitate before use.

Pesticide Disposal: Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to applicable federal, state, or local procedures.

Plastic Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Metal Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Container Disposal for Refillable Containers: Replace the dry disconnect cap, if applicable, and seal all openings which have been opened during use. Return the empty container to a collection site designated by Dow AgroSciences. If the container has been damaged and cannot be returned according to the recommended procedures, contact the Dow AgroSciences Customer Service Center at 1-800-258-1470 to obtain proper handling instructions.

General: Consult federal, state, or local disposal authorities for approved alternative procedures.

General Information

Garlon® 4 herbicide is recommended for the control of unwanted woody plants and annual and perennial broadleaf weeds in forests, and on non-crop areas including industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides and railroads, fence rows, non-irrigation ditch banks, and around farm buildings. Use on these sites may include application to grazed areas as well as establishment and maintenance of wildlife openings.

General Use Precautions

Agricultural Use Requirements for Forestry Uses: For use of this product on forestry sites, follow PPE and Reentry restrictions in the Agricultural Use Requirements section of this label.

Use Requirements for Non-cropland Areas: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is applied to non-cropland.

In Arizona: The state of Arizona has not approved Garlon 4 for use on plants grown for commercial production; specifically forests grown for commercial timber production, or on designated grazing areas.

Apply this product only as specified on this label.

Be sure that use of this product conforms to all applicable regulations.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

Chemigation: Do not apply this product through any type of irrigation system.

Do not apply Garlon 4 directly to, or otherwise permit it to come into direct contact with grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants and do not permit spray mists containing it to drift onto them.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands, flood plains, deltas, marshes, swamps, bogs, and transitional areas between upland and lowland sites. Do not apply to open water such as lakes, reservoirs, rivers, streams, creeks, salt water bays, or estuaries.

Avoid Injurious Spray Drift

Applications should be made only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

Aerial Application (Helicopter Only): For aerial application on rights-of-way or other areas near susceptible crops, use an agriculturally registered spray thickening drift control additive as recommended by the manufacturer or apply through the Microfoil[†] boom, Thru-Valve boom, or equivalent drift control system. Thickened sprays prepared by using high viscosity invert systems or other drift reducing systems may be utilized if they are made as drift-free as are mixtures containing an agriculturally registered thickening agent or applications made with the Microfoil boom or Thru Valve boom. If a spray thickening agent is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with the Microfoil boom, Thru Valve boom, or other systems that cannot accommodate thick sprays.

[†]Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

With aircraft, drift can be lessened by applying a coarse spray; by using a spray boom no longer than 3/4 the rotor length; by spraying only when wind velocities are low; or by using an approved drift control system. Keep operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used. Low pressure nozzles are available from spray equipment manufacturers. Select nozzles and pressures which provide adequate plant coverage, but minimize the production of fine spray particles.

Ground Equipment: To aid in reducing spray drift potential when making ground applications near susceptible crops or other desirable broadleaf plants, Garlon 4 should be applied through large droplet producing equipment, such as the Radiarc sprayer or in thickened spray mixtures using an agriculturally registered drift control additive, or high viscosity invert systems. When using a spray thickening or inverting additive, follow all use directions and precautions on the product label. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; and by spraying when wind velocity is low. Do not apply with nozzles that produce a fine droplet spray. Keep operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used. Low pressure nozzles are available from spray equipment manufacturers. Select nozzles and pressures which provide adequate plant coverage, but minimize the production of fine spray particles.

High Volume Leaf-Stem Treatment: To minimize spray drift, keep sprays no higher than brush tops and keep spray pressures low enough to provide coarse spray droplets. A spray thickening agent may be used to reduce spray drift.

Do not apply on ditches used to transport irrigation water. Do not apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result.

Do not apply this product using mist blowers unless a drift control additive, high viscosity inverting system, or equivalent is used to control spray drift.

Sprays applied directly to Christmas trees may result in conifer injury. When treating unwanted vegetation in Christmas tree plantations, care should be taken to direct sprays away from conifers.

Grazing and Haying Restrictions

Grazing or harvesting green forage:

- 1) **Lactating dairy animals**
Two quarts per acre or less: Do not graze or harvest green forage from treated area for 14 days after treatment.
Greater than 2 to 6 quarts per acre: Do not graze or harvest green forage until the next growing season.
- 2) **Other Livestock**
Two quarts per acre or less: No grazing restrictions.
Greater than 2 to 6 quarts per acre: Do not graze or harvest green forage from treated area for 14 days after treatment. Note: If less than 25% of a grazed area is treated, there is no grazing restriction.

Haying (harvesting of dried forage):

- 1) **Lactating dairy animals**
Do not harvest hay until the next growing season.
- 2) **Other Livestock**
Two quarts per acre or less: Do not harvest hay for 7 days after treatment.
Greater than 2 to 4 quarts per acre: Do not harvest hay for 14 days after treatment.
Greater than 4 quarts per acre: Do not harvest hay until the next growing season.

Slaughter Restrictions:

Withdraw livestock from grazing treated grass or consumption of treated hay at least 3 days before slaughter. This restriction applies to grazing during the season following treatment or hay harvested during the season following treatment.

Plants Controlled by Garlon 4

Woody Plants Controlled

alder	chinquapin	madrone
arrowwood	choke cherry	maples
ash	cottonwood	mulberry
aspen	Crataegus (hawthorn)	oaks
bear clover (bearmat)	dogwood	persimmon
beech	Douglas-fir	pine
birch	elderberry	poison ivy
blackberry	elm	poison oak
blackgum	gallberry	poplar
boxelder†	gorse	salmonberry
Brazilian pepper	hazel	salt-bush
buckthorn	hickory	(Braccharis spp.)
cascara	hombear	salt-cedar†
Ceanothus	kudzu††	sassafras
cherry	locust	

† For best control, use either a basal bark or cut stump treatment.

†† For complete control, retreatment may be necessary.

Annual and Perennial Broadleaf Weeds Controlled

black medic	curly dock	matchweed
bull thistle	dandelion	mustard
burdock	field bindweed	Oxalis
Canada thistle	goldenrod	plantain
chicory	ground ivy	purple loosestrife
clover	lambquarters	ragweed
creeping beggarweed	lespedeza	smartweed

Approved Uses

Foliar Applications

Use Garlon 4 at rates of 1 to 8 quarts per acre to control broadleaf weeds and woody plants. In all cases use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. The recommended order of addition to the spray tank is water, spray thickening agent (if used), surfactant (if used), additional herbicide (if used), and Garlon 4. If a standard agricultural surfactant is used, use at a rate of 1 to 2 quarts per acre. Use continuous adequate agitation.

Before using any recommended tank mixtures, read the directions and all precautions on both labels.

For best results applications should be made when woody plants and weeds are actively growing. When hard-to-control species such as ash, blackgum, choke cherry, elm, maples (other than vine or big leaf), oaks, pines, or winged elm are prevalent, and during applications made during late summer when the plants are mature, or during drought conditions, use the higher rates of Garlon 4 alone or in combination with Tordon® 101 Mixture herbicide.

When using Garlon 4 in combination with 3.8 pounds per gallon 2,4-D low volatile ester herbicide generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard-to-control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those recommended may be effective. Consult state or local extension personnel for such information.

High-Volume Leaf-Stem Treatment With Ground Equipment

Foliage Treatment

For control of woody plants, use Garlon 4 at the rate of 1 to 3 quarts in water to make 100 gallons of spray mixture, or Garlon 4 at 1 to 3 quarts may be tank mixed with 0.25 to 0.5 gallons of 3.8 pounds per gallon 2,4-D low volatile ester herbicide or Tordon 101 Mixture herbicide and diluted to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars.

Low Volume Foliar (Directed Spray)

For control of susceptible woody plants, mix 3 to 5 gallons of Garlon 4 in water to make 100 gallons of spray mixture, or mix 1 to 3 gallons of Garlon 4 with 0.5 to 1.0 gallon of Tordon K or 1 to 2 gallons of Tordon 101 Mixture in water to make 100 gallons of spray mixture. For best results, a surfactant should be added to all spray mixtures. When treating tall, high density brush, apply with a truck mounted spray gun and spray tips that deliver about 2 gallons per minute at 40 to 60 pounds per square inch (psi). For short, low to moderate density brush, backpack applications with spray tips that deliver 1 gallon or less of spray per minute are recommended. Apply at a volume that will wet the target brush, but minimize runoff. Resulting spray volumes will approximate 30 to 60 gallons per acre for truck mounted sprayers and 10 to 20 gallons per acre for backpack sprayers.

Broadcast Applications With Ground Equipment

Make application using equipment that will assure uniform coverage of spray volumes applied.

Woody Plant Control

Foliage Treatment: Use 4 to 8 quarts of Garlon 4 in enough water to make 20 to 100 gallons of total spray per acre, or Garlon 4 at 3 pints to 3 quarts may be combined with 1 to 2 gallons of 3.8 pounds per gallon 2,4-D low volatile ester herbicide or Tordon 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre.

Broadleaf Weed Control

Use Garlon 4 at rates of 1 to 4 quarts in a total volume of 20 to 100 gallons per acre as a water spray mixture. Apply at any time weeds are actively growing. Garlon 4 at 0.5 to 6.0 pints may be tank mixed with 1 to 2 quarts of 3.8 pounds per gallon 2,4-D amine or low-volatile ester, Tordon K, or Tordon 101 Mixture herbicide to improve the spectrum of activity. For thickened (high viscosity) spray mixtures, Garlon 4 can be mixed with diesel oil or other invert agent. When using an inverting agent, read and follow the use directions and precautions on the product label.

Aerial Application (Helicopter Only)

Aerial sprays should be applied using suitable drift control (See "General Use Precautions").

Foliage Treatment (Utility and Pipeline Rights-of-Way)

Use 4 to 8 quarts of Garlon 4 alone, or 3 to 4 quarts Garlon 4 in a tank mix combination with 1 to 2 gallons of 3.8 pounds per gallon 2,4-D low volatile ester herbicide or Tordon 101 Mixture and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions.

Basal Bark and Dormant Brush Treatments

To control susceptible woody plants in rights-of-way, and other non-crop areas, use Garlon 4 in oil or oil-water mixtures prepared and applied as described below. When preparing mixtures, use as oils either a commercially available basal oil, diesel fuel, No. 1 or No. 2 fuel oil, or kerosene. Substitute other oils or diluents only as recommended by the oil or diluent's manufacturer. When mixing with a basal oil or other oils or diluents, read and follow the use directions and precautions on the product label prepared by the oil or diluent's manufacturer.

Oil Mixture Sprays

Add Garlon 4 to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, reagitation is required.

Oil-Water Mixture Sprays

First, premix the Garlon 4, oil and surfactant in a separate container. Do not allow any water or mixtures containing water to get into the Garlon 4 or the premix. Fill the spray tank about half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

Note: If the premix is put in the tank without any water, the first water added may form a thick "invert" (water in oil) emulsion which will be hard to break.

Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 1 to 5 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20-40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground. Thorough wetting of the indicated area is necessary for good control. Spray until runoff at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line.

Low Volume Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks in a manner which thoroughly wets the lower stems, including the root collar area, but not to the point of runoff. Herbicide concentration should vary with size and susceptibility of species treated. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line.

Streamline Basal Bark Treatment (Southern and Western States)

To control or suppress susceptible woody plants for conifer release, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using equipment which provides a directed straight stream spray. Apply sufficient spray to one side of stems less than 3 inches in basal diameter to form a treated zone that is 6 inches in height. When the optimum amount of spray mixture is applied, the treated zone should widen to encircle the stem within approximately 30 minutes. Treat both sides of stems which are 3 to 4 inches in basal diameter. Direct the spray at bark that is approximately 12 to 24 inches above ground. Pines (loblolly, slash, shortleaf, and Virginia) up to 2 inches in diameter breast height (dbh) can be controlled by directing the spray at a point approximately 4 feet above ground. Vary spray mixture concentration with size and susceptibility of the species being treated. Best results are achieved when applications are made to young vigorously growing stems which have not developed the thicker bark characteristic of slower growing, understory trees in older stands.

This technique is not recommended for scrub and live oak species, including blackjack, turkey, post, live, bluejack and laurel oaks, or bigleaf maple. Apply from approximately 6 weeks prior to hardwood leaf expansion in the spring until approximately 2 months after leaf expansion is completed. Do not apply if snow or water prevent spraying at the desired height above ground level.

Low Volume Stem Bark Band Treatment (North Central and Lake States)

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Apply the spray in a 6 to 10 inch wide band that completely encircles the stem. Spray in a manner that completely wets the bark, but not to the point of runoff. The treatment band may be positioned at any height up to the first major branch. For best results apply the band as low as possible. Spray mixture concentration should vary with size and susceptibility of species to be treated. Applications may be made at any time, including winter months.

Thinline Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in diameter, apply undiluted Garlon 4 in a thin stream to all sides of the lower stems. The stream should be directed horizontally to apply a narrow band of Garlon 4 around each stem or clump. From 2 to 15 milliliters of chemical will be required for treatment of single stems and from 25 to 100 milliliters to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required.

Dormant Stem Treatment

Dormant stem treatments will control susceptible woody plants and vines with stems less than 2 inches in diameter. Plants with stems greater than 2 inches in diameter may not be controlled and resprouting may occur. This treatment method is best suited for sites with dense, small diameter brush. Dormant stem treatments of Garlon 4 can also be used as a chemical side-arm for controlling lateral branches of larger trees that encroach onto roadside, utility, or other rights-of-way.

Mix 4 to 8 quarts of Garlon 4 in 2 to 3 gallons of crop oil concentrate or other recommended oil and add this mixture to enough water to make 100 gallons of spray solution. Use continuous adequate agitation. Apply with Radiarc, OC nozzles, or handgun using 70 to 100 gallons of spray per acre to ensure uniform coverage of stems. Garlon 4 may be mixed with 4 quarts of Weedone 170 herbicide to improve the control of black cherry and broaden the spectrum of herbicidal activity. Apply anytime within 10 weeks of budbreak, generally February through April. Do not apply to wet or saturated bark as poor control may result.

Cut Stump Treatment

To control resprouting of cut stumps of susceptible species, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressures and a solid cone or flat fan nozzle. Spray the root collar area, sides of the stump, and the outer portion of the cut surface including the cambium until thoroughly wet, but not to the point of runoff. Spray mixture concentration should vary with size and susceptibility of species treated. Apply at any time, including in winter months, except when snow or water prevent spraying to the ground line.

Treatment of Cut Stumps in Western States

To control resprouting of salt-cedar and other *Tamarix* species, bigleaf maple, tanoak, Oregon myrtle, and other susceptible species, apply undiluted Garlon 4 to wet the area adjacent to the cambium and bark around the entire circumference of cut stumps. Treatments may be applied throughout the year; however, control may be reduced with treatment during periods of moisture stress as in late summer.

Use an applicator which can be calibrated to deliver the small amounts of material required.

Note: All basal bark and dormant brush treatment methods may be used to treat susceptible woody species on range and permanent pasture land provided that no more than 1.5 quarts of Garlon 4 are applied per acre. Large plants or species requiring higher rates of Garlon 4 may not be completely controlled.

Forest Management Applications

For broadcast applications apply the recommended rate of Garlon 4 in a total spray volume of 5 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. Use spray volumes sufficient to provide thorough coverage of treated foliage. Use application systems designed to prevent spray drift to off-target sites. Nozzles or additives that produce larger droplets may require higher spray volumes to provide adequate coverage.

Broadcast Treatments for Forest Site Preparation (Not For Conifer Release)

Southern States Including Alabama, Arkansas, Delaware, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia: To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 4 to 8 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 2 to 4 quarts per acre of Garlon 4 in tank mix combination with 6 to 8 quarts per acre of Tordon 101 Mixture herbicide or 2.0 to 2.5 quarts per acre of Tordon K herbicide. Tordon 101 Mixture and Tordon K are not registered for use in the state of California. Where grass control is also desired, Garlon 4, alone or in combination with Tordon K or Tordon 101 Mixture, may be tank mixed with 1 to 4 quarts per acre of Accord or Roundup herbicide, or 8 to 16 fluid ounces per acre of Arsenal Applicator's Concentrate herbicide. Susceptible woody plants, broadleaf weeds, and grasses may also be controlled using a tank mix of 2 to 4 quarts per acre of Garlon 4 and 16 to 24 fluid ounces of Arsenal Applicator's Concentrate. When applying tank mixes, follow use directions and precautions on each product label.

In Western, Northeastern, North Central, and Lake States (States Not Listed Above As Southern States): To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 3 to 6 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 1.5 to 3.0 quarts per acre of Garlon 4 in tank mix combination with 4 to 8 quarts of Tordon 101 Mixture, 2 quarts per acre of Tordon K, or 1 to 2 gallons per acre of 3.8 pounds per gallon 2,4-D low volatile ester. Tordon 101 Mixture and Tordon K are not registered for use in the state of California. Where grass control is also desired, Garlon 4, alone or in tank mix combination with Tordon 101 Mixture or Tordon K, may be applied with 1 to 3 quarts per acre of Accord or Roundup herbicide, 2 to 4 ounces per acre of Oust, a combination of Accord (or Roundup) plus Oust at the rates listed, or 8 to 16 fluid ounces of Arsenal Applicator's Concentrate. When applying tank mixes, follow the use directions and precautions on each product label.

Applications for Site Preparation in Southern Coastal Flatwoods: To control susceptible broadleaf weeds and woody species such as galiberry and wax-myrtle, and for partial control of saw-palmetto, apply 2 to 4 quarts per acre of Garlon 4. To broaden the spectrum of species controlled to include fetterbush, staggerbush, titi, and grasses, apply 2 to 3 quarts per acre of Garlon 4 in tank mix combination with 8 to 16 fluid ounces of Arsenal Applicator's Concentrate herbicide. Where control of galiberry, wax-myrtle, broadleaf weeds, and grasses is desired, 2 to 3 quarts per acre of Garlon 4 may be applied in tank mix combination with 2 to 3 quarts per acre of Accord herbicide.

These treatments may be broadcast during site preparation of flat planted or bedded sites or, on bedded sites, applied in bands over the top of beds. For best results, make applications in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August.

Note: Do not apply after planting pines.

Note: Conifers planted sooner than 1 month after treatment with Garlon 4 at less than 1 gallon per acre or sooner than 2 months after treatment at 1 to 2 gallons per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period observed.

Directed Spray Applications for Conifer Release

To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 1 to 5 gallons of Garlon 4 in enough water to make 100 gallons of spray mixture. This spray should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after the hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray solutions away from conifer foliage, particularly foliage of desirable pines.

Note: Sprays may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

Broadcast Applications for Mid-Rotation Understory Brush Control in Southern Coastal Flatwoods Pine Stands (Ground Equipment Only)

For control of susceptible species such as gallberry and wax-myrtle and broadleaf weeds, apply 2 to 4 quarts per acre of Garlon 4. To broaden the spectrum of woody plants controlled to include fetterbush, staggerbush, and titi, apply 2 to 3 quarts per acre of Garlon 4 in tank mix combination with 8 to 16 fluid ounces of Arsenal Applicator's Concentrate. Saw-palmetto will be partially controlled by use of Garlon 4 at 4 quarts per acre or by mixtures of Garlon 4 at 2 to 3 quarts per acre in tank mix combination with either 8 to 16 fluid ounces of Arsenal Applicator's Concentrate or 2 ounces of Escort herbicide.

These mixtures should be broadcast applied over target understory brush species, but to prevent injury to pines, make applications underneath the foliage of pines. It is recommended that sprays be applied in 30 or more gallons per acre of total volume. For best results, make applications in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August.

Broadcast Applications for Conifer Release in the Pacific Northwest and California

On Dormant Conifers Before Bud Swell (Excluding Pines): To control or suppress deciduous hardwoods such as vine maple, bigleaf maple, alder, or willow before leaf-out or evergreen hardwoods such as madrone, chinquapin, and *Ceanothus* spp., use Garlon 4 at 1 to 2 quarts per acre. Diesel or fuel oil carrier may be used especially on deciduous hardwood species. On evergreen hardwoods, water carrier with 1 to 2 gallons of diesel oil per acre or a suitable surfactant or oil substitute at manufacturer's recommended rates are equally effective.

On Conifer Plantations (Excluding Pines) After Hardwoods Begin Growth and Before Conifer Bud Break ("Early Foliar" Hardwood Stage): Use Garlon 4 at 1.0 to 1.5 quarts alone or with 3.8 pounds per gallon 2,4-D low volatile ester herbicide in water carrier to provide no more than 3 pounds acid equivalent per acre from both products.

After conifer bud break, these sprays may cause more serious injury to the crop trees. Added surfactant may cause unacceptable injury to conifers especially after bud break.

On Conifer Plantations (Excluding Pines) After Conifers Harden Off in Late Summer and While Hardwoods Are Still Growing Actively: Use Garlon 4 at rates of 1.0 to 1.5 quarts per acre alone or plus 3.8 pounds per gallon 2,4-D low volatile ester herbicide to provide no more than 3 pounds acid equivalent per acre from both products. Treat as soon after conifer bud hardening as possible so that hardwoods are actively growing. Added oil, oil substitute, or surfactant may cause unacceptable injury to the conifers.

Note: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Broadcast Applications for Conifer Release in the Eastern United States

To release spruce, fir, red pine, and white pine from competing hardwoods such as red maple, sugar maple, striped maple, alder, birch (white, yellow, and grey), aspen, ash, pin cherry, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3.0 quarts per acre alone or plus 3.8 pounds per gallon 2,4-D amine or low-volatile ester herbicide to provide no more than 4 pounds acid equivalent per acre from both products. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

Note: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Broadcast Applications for Conifer Release in the Lake States Region

To release spruce, fir, and red pine from competing hardwoods such as aspen, birch, maple, cherry, willow, oak, hazel, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3.0 quarts per acre. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

Spot Treatment to Control Clumps of Resprouting Hardwoods Such as Big Leaf Maple Using a Hovering Helicopter in Forests

Stem Treatment Before Leaf-Out: Mix 1 to 2 gallons of Garlon 4 with about 20 gallons diesel oil and enough water to make 100 gallons of solution. Apply as an invert emulsion by means of a hovering helicopter equipped with a nozzle system to direct sufficient spray to cover the stems to the ground line of the sprouted trees, usually 0.75 to 1.5 gallons per clump.

Note: Conifers contacted by this spray may be seriously injured; in existing plantations, drift control systems, such as invert emulsions, should be used to minimize injury to adjacent conifers. A dye or other marking system to designate treated trees may be used.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. In no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the "Warranty Disclaimer" above and this "Limitation of Remedies" cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the "Warranty Disclaimer" or this "Limitation of Remedies" in any manner.

Trademark of Dow AgroSciences LLC
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-102-021
Replaces Label: 113-12-020

EPA-Accepted 09/08/95

Revisions:

DowElanco notified the EPA that its legal name will change to Dow AgroSciences LLC effective January 1, 1998. The following label changes are being made via non-notification as a result of this company name change:

- Company name changed from DowElanco to Dow AgroSciences LLC (logo, trademark reference, address line, warranty statement)
- Emergency telephone number updated to include a web site address (PR Notice 97-4)

The name of this product and its EPA registration number remain the same. No other changes are being made to the label at this time.



Roundup[®] Pro Herbicide Technical Fact Sheet

Number 1

September 1995

INTRODUCTION

Roundup Pro herbicide is made up of Monsanto's glyphosate, a surfactant system and water. Roundup Pro is a broad-spectrum herbicide with no soil residual activity. Roundup Pro is used to control undesirable vegetation on roadsides, parks, schoolyards, in turf and ornamental applications, and similar noncrop and industrial sites.

The effectiveness and certain desirable attributes of glyphosate have made it one of the most widely used herbicides in the world today. The Monsanto family of glyphosate-based herbicides is made up of more than 90 different brands used in agricultural, industrial and residential markets in more than 100 countries worldwide.

How Does Roundup Pro Herbicide Work?

The active ingredient in Roundup Pro is glyphosate, the common name for N-(phosphonomethyl) glycine. It inhibits an enzyme that is essential to formation of specific essential amino acids in plants. Roundup Pro is absorbed into green leaves or green stems of treated vegetation. Once there, glyphosate moves or "translocates" throughout the plant.

Obvious signs of treatment may not be visible for one to four days in annual weeds and up to seven days or more in perennials. Visible effects include gradual wilting, yellowing — followed by complete browning, deterioration of plant tissue and ultimate decomposition of the underground roots and rhizomes. Since Roundup Pro works only on plants that have emerged through the soil, it will not affect seeds that have not yet sprouted.

Are Herbicides Regulated?

Hundreds of separate studies on Roundup Pro and its active ingredient have been reviewed by the EPA for health, safety and environmental effects. In addition, state agencies have carefully reviewed these studies, examined product use for specific geographies, and are responsible for strict registration standards as applied to pesticides. Roundup Pro and its active ingredient have one of the most extensive worldwide health and environmental effects data bases ever completed on a herbicide, and studies continue today as new requirements come into existence.

Acute Toxicity Testing

The results of acute (single exposure) oral toxicology tests using rats are expressed as LD₅₀ values. EPA places herbicides into one of four categories, with "I" being the most toxic and "IV" the least toxic. Roundup Pro is rated as an EPA Category IV compound in oral rat tests. Here are the approximate oral LD₅₀ values for rats fed Roundup Pro and some other familiar substances to help put these numbers into perspective. The smaller the LD₅₀, the greater the toxicity. (Roundup Pro is less toxic to rats than table salt following acute oral ingestion.)

TABLE 1

COMPOUND	LD ₅₀	TOXICITY
		Least
Roundup Pro	>5,000 mg/kg*	
Table salt	3,000 mg/kg	
Vitamin A	2,000 mg/kg	
Aspirin	1,000 mg/kg	
Nicotine	53 mg/kg	Most

Data from laboratory studies conducted with Roundup Pro herbicide are summarized in Table 2.

TABLE 2

Acute (single) Exposure Studies with Roundup Pro Herbicide

Exposure Route	Species	Toxicity	EPA Category**
Oral	rat	>5,000 mg/kg	IV
Dermal	rabbit	>5,000 mg/kg	IV
Inhalation	rat	4.2 mg/l	IV
Eye Irritation	rabbit	Slightly irritating	III
Skin Irritation	rabbit	Essentially non-irritating	IV

Summary of Health and Safety Characteristics of Roundup Pro

No skin allergy was observed in guinea pigs following repeated skin exposure.

Long-Term Toxicity Tests

Long-term toxicological testing with laboratory animals serves as a model for evaluating the potential of a substance to cause adverse effects in humans. Toxicology studies measure the effects of direct and indirect exposure to many substances including herbicides and pharmaceuticals.

Long-term (chronic) toxicological studies have been conducted to determine the effects of prolonged exposure to the active ingredient in Roundup Pro. These studies were conducted on rats, mice and other laboratory animals. High doses were administered on a daily basis for the average lifetime (two years) of rats and mice and for one year for dogs.

(continued)

*The mg/kg for LD₅₀ values is in milligrams test substance per kilogram of body weight.

**The U.S. Environmental Protection Agency has established acute toxicity ranging from slight to moderate to severe ratings, with Category I being severe and Category IV being slight.

EPA classified the active ingredient in Roundup Pro herbicide, as Category E (evidence of non-carcinogenicity for humans), based on a thorough review of results from Monsanto's extensive toxicological tests required by the agency. This is the most favorable category possible — one that has been given to only a limited number of pesticide active ingredients. (The categories are rated from A through E, with "E" being the most favorable.)

Mutagenicity Tests

An extensive battery of mutagenicity and genotoxicity assays designed to evaluate three major objectives — gene mutations, chromosome aberrations and DNA damage and repair — were also performed. The results of these studies show that the active ingredient in Roundup Pro does not interfere with the genetic makeup of cells.

Reproductive Tests

Long-term feeding studies have shown that the active ingredient in Roundup Pro does not cause birth defects or reproductive problems in laboratory animals. Pregnant rabbits and rats given high-dose levels delivered normal offspring. In a study in which glyphosate was fed continuously over two generations, weight reductions were seen only at a very high-dose level. Lower dose levels in this study and in a three-generation study did not affect the ability of rats to mate, conceive, carry or deliver normal offspring. Nor were any significant adverse effects observed on the ability of those offspring to develop into normal adults.

ENVIRONMENTAL FATE

In addition to toxicology tests, a completely different set of tests are conducted to determine how the herbicide behaves in the environment. One series of tests is conducted to measure what happens to the herbicide itself when it enters the environment. Some studies measure the tendency of the chemical to bind to the soil and its likelihood of moving through the soil after rainfall. Other tests measure the ability of microorganisms in the soil to degrade the product.

Roundup Pro herbicide does not persist in the environment. In soil, Roundup Pro is degraded by microorganisms naturally present in the soil; and the process of degradation doesn't harm the microorganisms. Microbial degradation of Roundup Pro herbicide occurs under both aerobic (with air) and anaerobic (without air) conditions. The average half life of the active ingredient is less than 45 days in soil and less than eight days in natural water. Studies show that the active ingredient does not accumulate in soil/environment after repeated applications over several years or after repeated applications in one year.

Wildlife Effects

The high water solubility of glyphosate suggests that it should not bioaccumulate, and this has been confirmed. Work done with laboratory animals shows that glyphosate is poorly absorbed when ingested. Any absorbed glyphosate is rapidly eliminated, resulting in minimal tissue retention. Feeding studies with chickens, cows and pigs have shown extremely low to no residues in meat and fat following repetitive exposure. Negligible residues have also been reported in wild animals such as voles, chipmunks, hares and moose after feeding in treated

areas. Similarly, a series of bioaccumulation studies was done to determine if glyphosate concentrated in the edible portions of fish and marine organisms. The results clearly indicated that glyphosate did not accumulate. Moreover, transfer of organisms to glyphosate-free water resulted in virtually complete elimination of glyphosate. Therefore, the data obtained for numerous studies with mammals, birds, fish and marine organisms firmly support the conclusion that glyphosate will not bioaccumulate in the food chain.

Numerous studies have also been conducted on non-target species such as birds, deer mice, voles, chipmunks and various aquatic organisms.

For example, this diverse testing focused on specifics such as effects on birds' ability to lay eggs, the ability of the eggs to survive and the thickness of the egg shells. Other studies examined the impact on habitat change and bacteria in the soil.

Based on an extensive review, the EPA concluded that the active ingredient in Roundup Pro is no more than slightly toxic to birds and is practically non-toxic to fish, aquatic invertebrates and honey bees. In addition, the EPA concluded that endangered terrestrial or aquatic organisms will not be affected from the use of glyphosate, the Roundup Pro active ingredient.

Ecosystem Studies

Because Monsanto's Roundup family of herbicides are widely used throughout the world, ecosystem studies have been conducted to assess what effect, if any, the active ingredient had on an ecosystem. The wildlife diversity and complex nature of the forest ecosystem presented an ideal setting to assess the ecological effects of the herbicide. Results from two landmark, independently conducted and comprehensive ecosystem studies — the Canadian Carnation Creek Study¹ and the Oregon State University² study — showed:

The active ingredient:

- Degrades in soil
- Is essentially immobile in soil
- Is not a threat to either groundwater or surface water.
- Does not cause adverse health or migrational changes in fish.
- Has no effect on aquatic or terrestrial invertebrates or waterfowl, when used according to label directions.

No Volatility

Roundup Pro herbicide is non-volatile. That means Roundup Pro does not produce vapors that could move through the air and damage non-target vegetation; and there are no odors to disturb the public.

1 Forest Pest Management Institute, Proceedings of the Carnation Creek Herbicide Workshop (Sault Ste. Marie, Ontario, Ministry of Forests, Research Branch, 1989.)

2 Newton, M., Howard, K.M., Kelpas, B.R., Danhaus, R., Lottman, C.M., and S. Dubleman, (1984). Fate of Glyphosate in an Oregon Forest Ecosystem, Journal of Agricultural and Food Chemistry, 32:1144.

Habitat Restoration

Various wildlife habitat restoration groups use Roundup and other Monsanto glyphosate herbicides in the restoration and maintenance of habitat and refuge areas. Members of groups as diverse as Quail Unlimited, the Audubon Society, The Nature Conservancy and The Society for Ecological Restoration have utilized Roundup and Rodeo herbicides in various preservation and restoration projects.

SUMMARY

The results of extensive toxicological studies in animals have demonstrated that glyphosate, the active ingredient in Roundup Pro herbicide, DOES NOT cause carcinogenicity, birth defects, mutagenic effects, neurotoxic

effects or reproductive toxicity. In addition, extensive environmental fate studies and review have shown that no significant adverse effects to the environment occurred following exposure to Roundup Pro and other Monsanto glyphosate herbicides.

MONSANTO COMPANY

Monsanto, the manufacturer of Roundup Pro and other glyphosate-based herbicides, encourages the public to become more knowledgeable about its products. More information can be obtained by calling: 1-800-332-3111, or writing to Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63167.

For additional information, consult the appropriate federal and state supplemental labels for Roundup Pro.

The Roundup Pro Surfactant

The surfactant system used in Roundup Pro herbicide is a phosphate ester neutralized polyethoxylated tallowamine blend. There are hundreds of consumer products which use surfactants as ingredients, including soaps, detergents, shampoos and cosmetics.

Surfactants in Roundup Pro are listed on the EPA-approved List 4B (EPA has sufficient information to conclude that the surfactant current use pattern in pesticide products will not affect public health or the environment).

In the past, Roundup carried a "Warning" signal word on the label and on Material Safety Data Sheets which mandated eye protection gear. Roundup Pro has an improved signal word, "Caution." While goggles are generally recommended when mixing herbicides, customers can feel confident in using Roundup Pro because the potential for eye irritation has been reduced. (See Table 2.)

APPENDIX C: Inspection Forms

Weir Farm National Historic Site
INSPECTION - SPECIMEN TREES

[illegible]

Weir Farm National Historic Site INSPECTION - FRUIT TREES

[illegible]

Weir Farm National Historic Site

INSPECTION - GARDEN BEDS

Category:

Feature Name and Field ID#:

Weeds
Wilting
Vandalism
Deadheading
Staking
Edging
Divide Perennials
Soil pH, Fertility
Pests, Diseases

Comment on condition,
field diagnosis and work needed:

Further Diagnosis Needed (y/n)	Work Needed (X)	Critical Work (*)	Replace Immed (1)	Plan for Repl (P)	Action Completed (date)
-----------------------------------	-----------------	-------------------	-------------------	-------------------	----------------------------

Codes: 0= can not assess
1= satisfactory condition
2= fair, needs some work
3= poor, needs work
4= critical condition

Recommended Equipment for Inspection:

- binoculars
- insect jars

Inspected by:

Date:

Weir Farm National Historic Site
INSPECTION - SHRUBS, VINES, & ROSES

[illegible]

WEIR FARM NATIONAL HISTORIC SITE

INSPECTION - STONE WALLS

[illegible]

Inspected by:

Date:

APPENDIX D: Tree Removal Procedures

Compiled from the following source:

American National Standard for Tree Care Operations: Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush (ANSI Z133.1-1994).

TREE REMOVAL PROCEDURES

A. Topping Trees Before Removal

1. Inspect the tree before beginning operations:
 - Crown: Check for weight distribution; extra topping or rigging may be required if the weight is distributed toward an historic structure. Check also for broken or bad limbs or deadwood that may break and for cavities or splits in limbs where the rope would normally be placed.
 - Stem: Check for splits, decay, cavity, and rot. All mature trees of doubtful strength must be diagnosed with a brace and bit.
 - Roots: Note root system to check for instability. Shallow or exposed roots may require extra rigging.
2. Inspect the work area:
 - Ensure that there is nothing in the way that could be damaged.
 - Stake holdfasts and workers pulling the rope must be outside the striking distance of the tree. If a hill or water hazard makes this impossible, the tree should be topped.
3. Remove the limbs:
 - Limbs should be removed, working from top to bottom, until the tree is stripped.
 - Leave sufficient stubs to provide crotches for lowering the section of the main stem or main limbs.
 - Unless there is room to drop the limbs free, limbs must be roped. Use 1/2" or 5/8" polypropylene rope for lowering smaller limbs and 3/4" or 1" rope for larger limbs.
 - All ropes should be crotched on the main trunk, a strong limb, or an adjacent tree, well above the limb being cut. The crotch must be over the point where the rope is attached to the limb being removed to prevent binding in case the limb has to be pulled up in the tree before being lowered.
 - Power saws may be crotched on the main trunk or trunks in an immediately adjacent tree directly above the work area.

B. Sectioning Trees Before Removal

1. Removal of the main trunk when trunk sections can be jerked free after they are cut:
 - Section must be small enough to be safely handled by the worker on the rope.
 - The guide rope should be attached near the top of the section being removed using a clove hitch and two half hitches.

- Workers must not remain crotched in the section being removed after sawing has started.
 - Notch and back cut should be made as in tree removal. A 2" difference in the location of the two horizontal cuts is recommended for large limbs.
 - Before beginning the back cut, the bark 1" below and on each side of the notch should be scored with a hand saw to prevent stripping.
 - When sawing has been completed and the workers have moved to a safe place, the section may be pulled and dropped free by workers on the ground if conditions permit. If the section is to be lowered by rope, follow the procedures outlined for limb removal.
2. Removal of the main trunk when cut sections cannot be dropped free and crotches are present:
- Attach a lowering rope using a clove hitch and two half hitches 12" above the proposed cut.
 - Attach a guide rope using the same knots near the top of the section being removed.
 - The lowering rope may be crotched in any of the crotches left when lowering limbs. Leave only enough slack in the lowering rope to avoid interference with sawing.
 - Saw cuts should leave 2" holding wood in large cuts and slightly less in smaller cuts under 6".
 - Bark should be scored 1" below and on each side of the notch with a handsaw when trunks can be jerked free after they are cut.
 - The lowering rope should be pulled taut and held by workers on the ground or snubbed securely around a suitable anchor.
 - The worker in the tree should move to a safe place well beyond the striking distance of the section when it falls and on the opposite side of the tree. The worker should leave the tree if there is any question on safety.
 - The section may now be pulled over by the workers on the ground using the guide rope. The procedure should continue until the tree is low enough for felling.
3. Removal when the main trunk stem section cannot be jerked free after it is cut and crotches are not available for lowering (lashing):
- Select the direction in which you want the section to fall and the point at which the cut is to be made.
 - At a point 12" below the proposed cut make 4 wraps around the tree, keeping the wraps close together using a 5/8" rope. Do not use polypropylene or nylon rope unless a snatch block is used.
 - Tie the rope snugly on the side opposite the proposed direction of the fall using a square knot.
 - Pass the free end of the 1" lowering rope down beneath the lower three wraps and up to the point of attachment to the section approximately 12" above the proposed cut.

- Attach with a clove hitch and two half hitches and pull enough rope to allow unhindered movement of the saw when cutting.
- A snatch block may be used if it is advisable to thread the lowering rope through the lashing.
- Block should be attached to the lower three wraps with the hook up and extra care taken by workers on the ground, as the rope will run much more freely than if the lashing or a crotch were the actual report.

C. Topping and Sectioning Multiple Trunk Trees

1. Follow the procedures for topping and sectioning a single trunk; remove tree and limbs as previously described.
2. Removal of the main trunk may be facilitated by using crotches on adjacent trunks.
3. Workers should crotch in a position where they are free of the section being removed, both while cutting and after the cut is complete.

D. Removal (Felling) of Single Trunk, Straight Trees

1. *Inspect felling area:* Workers must have an escape route to one side of and away from the direction of the fall and must leave the stump area of the tree being felled, regardless of size, when it starts to fall.
2. *Install rigging:* Guy ropes should be used on all trees that are sufficiently large to cause damage if they should fall in any but the intended direction. Install guy ropes before any cutting is done to the base.
3. *Notch:* Use a standard notch in tree felling. Make two cuts, one parallel or horizontal to the ground, the other at an angle of 45 degrees. The depth should be from 1/4 to 1/3 the diameter of the tree. The notch must be a right angle to the direction of pull.
4. *Backcut:* Make the backcut horizontal and about 2" above the horizontal cut of the notch to prevent kickback. Bring the backcut in evenly until there is approximately 2" of holding wood left.
5. *Felling:* Before sawing into the 2" of holding wood, the power saw operator must have an adequate and clear escape route and assure that all is in readiness for the tree to fall safely. The tree should be felled on as level ground as possible, avoiding stumps, rocks, and other objects that may cause the tree to roll when it falls. Every precaution must be taken to avoid damaging the existing vegetation, structures, and other landscape features. All stubs that might dig in should be removed and the area should be blanketed with brush and logs to cushion the fall.

E. Removal of Leaning Trees

1. Trees leaning toward the direction of fall:
 - As a general rule, the greater the lean towards the direction of the fall, the deeper the notch should be.
 - Trees with a severe lean shall be chained to prevent the trunk from splitting.
 - Trees that characteristically split must have the corners cut before the felling operation has advanced to the stage where splitting may occur.
2. Trees leaning from the direction of fall:
 - Trees with a considerable lean away from the direction of the fall must be looped or tightened on the back side prior to removal.
 - Trees with a slight lean away from the direction of the fall can be guided by leaving more holding wood on the side opposite the one towards which it leans. this is an auxiliary aid only and is not to be entirely depended upon to change the direction of the fall. Securely anchored tackle blocks should be used to ensure that the tree will fall where desired.

F. Removal of Rotten or Hollow Trees

1. Thoroughly diagnose the tree to determine if wood is sound either above or below the normal cutting area. Sawing should be done if one of these areas provided it can be done safely.
2. If the tree cannot be felled safely in one piece, the tree must be topped.
3. If there is a possibility of premature splitting or breaking, the tree should be chained.
4. Reduce the possibility of splitting or breaking by sawing two corners prior to cutting the holding wood.
5. In order to reduce the possibility of the breakage when the back cut is started or of a rotten core from dropping and jamming the saw, two corner cuts should be used instead of one back cut.

G. Removal of Cracked or Split Trees

1. Before beginning the back cut, at least one chain or cable should be placed above and as close as practical to the back cut to prevent the separation of the trunk. The chain must be held securely in place by wedges.
2. If the split is parallel to the direction of fall, the top must be roped together, but not in such a manner as to cause the split to widen where the cut is being made.

Once the tree is properly roped and chained, the felling cuts may be made in the usual manner.

3. If the split is at right angles to the direction of the fall, the procedures for roping and chaining is the same but the depth of the cut should be governed by the split. The top should be roped together in such a manner that both parts will come together. Rope with tow turns on the front half and a clove hitch and half hitches on the other part. Do not rope in such a manner that the tree will twist as it starts to fall.
4. When properly roped and chained, trees may be notched. Bring the notch cut to within an inch of the split, do the same with the back cut and safely pull the tree over. Wedges shall not be used on this type of tree.

H. Removal of Twin Trees

1. Twin trees to be removed separately should have a rope attached to each section.
2. If possible, the trees should be removed using normal notches. If there is not room to use a saw on the back cut, the tree should be felled using wedges.
3. Start the undercut as with a normal notch so that the back of the cut is at right angles to the hold fast or anchor.
4. Drive a wooden felling wedge far enough behind the saw blade to prevent the saw from binding.
5. Continue to saw approximately 3/4 of the way through, then drive a wedge in securely from either side and if possible just beyond the half-way point of the tree diameter.
6. Remove the first wedge and chop or saw out the notch to control the direction of fall.
7. Drive the two wedges in as far as possible and continue sawing through to the back of the tree until it can be pulled with the guide rope. Do not pull too hard or the entire tree may jump when it is cut free.
8. Smaller trees may have the back started by boring with the end of the blade or cutting down at an angle to reach the same point in relation to the notch as if using a horizontal cut. The notch in both cases must be exercised by the operator when boring or angle-cutting to prevent the saw from kicking back.
9. The other section of the tree may then be removed in the normal manner.

I. Removal of Trees Larger in Diameter than the Length of the Blade

1. Start the first felling cut from the side of the tree nearest the notch, at the same time working the bumper plate away from the notch as the chain progresses through the cut. The second cut should start from the back of the tree opposite the notch with the engine of the saw toward the notch.
2. The tree should then be removed in normal fashion.

APPENDIX E: Project Agreement

Olmsted Center for Landscape Preservation



Project Agreement and Project Scoping Sheet

Weir Farm National Historic Site Preservation Maintenance Plan

Project Summary

The Olmsted Center for Landscape Preservation will work in collaboration with staff of Weir Farm National Historic Site (WEFA) to prepare a Landscape Preservation Maintenance Plan.

Project Background

Weir Farm National Historic Site is a significant historic landscape located in Wilton, Connecticut. As the home and workplace of the eminent American impressionist painter J. Alden Weir (1852-1919), the landscape of Weir Farm has been captured in many of his paintings and sketches. In addition, Weir's daughter Dorothy painted at the farm while her husband, Mahonri Young, made many sketches of the property and had a sculpture studio on the premises. The 153-acre landscape was acquired by Weir in 1882. Subsequent land purchases brought the total to 238 acres at Weir's death in 1919. The National Park Service currently owns and maintains 60 of the original acres.

The cultural landscape at Weir Farm has been carefully documented in the *Cultural Landscape Report for Weir Farm National Historic Site Volume 1: Site History and Existing Conditions* and in *Volume 2: Analysis and Treatment*. This Preservation Maintenance Plan is intended to further enhance this documentation by prescribing maintenance procedures aimed at preserving those features identified as significant and initializing a record keeping system. In addition, the Plan is intended to facilitate maintenance planning and activities.

Project Objectives & Format

To develop a Preservation Maintenance Plan which identifies critical and immediate stabilization and protection work required to halt and/or reverse the deterioration of landscape resources, provide guidance for the ongoing care of the site and maintenance procedures required to perpetuate the historic character.

Recognizing that a comprehensive Preservation Maintenance Plan addressing each individual landscape feature is not possible within the given financial and time constraints, WEFA and OCLP staff agree to focus this year's work on prioritized issues and concerns identified by the park. Within the plan however, all areas to be addressed in a comprehensive Preservation Maintenance Plan will be identified. The Plan will be organized in one or more three-ring binders to facilitate the addition of information in the coming years as time and funding permit.

This project will address the following priority areas as identified by the park (in order as funding and time allow):

1. The "Secret Garden" of the Weir Complex - the park identified the need for maintenance recommendations and a maintenance calendar
2. The Sunken Garden of the Burlingham Complex - the park identified the need for maintenance recommendations and a maintenance calendar
3. Planting Beds and Borders
4. Turf Management (lawns, fields, orchards)
5. Orchard & Fruit Tree Maintenance
6. Specimen Shrub & Tree Maintenance
7. Invasive Plant Management
8. Field Edge Management
9. Stone Wall Maintenance Recommendations

AutoCAD maps, originally prepared by Child Associates, Inc. for the *Cultural Landscape Report for Weir Farm National Historic Site, Volume 1: Site History and Existing Conditions* will be used as baseline information in the preparation of this report. Maps for this report, however, will be hand drawn. If the AutoCAD maps cannot be made available in a timely manner for use in this report, the hand-drawn maps prepared for the *Cultural Landscape Report for Weir Farm National Historic Site, Volume 2: Analysis and Treatment* will be utilized for baseline information.

Project Schedule

March 1998	Project Scoping Meeting at Weir Farm NHS
April 1998	Prepare Project Agreement
June 1998	Complete Field Work - inventory and condition assessment
mid-August 1998	First Draft of Preservation Maintenance Plan submitted to park for review
September 1998	Final Preservation Maintenance Plan delivered to park (2 copies)

The preliminary sequence of work performance is as follows:

- Review of existing documentation by Historical Landscape Architect and SCA Intern, **1 week**
 - Inventory and condition assessment, Horticulturist, Historical Landscape Architect, and SCA Intern, **1 week**
 - Data entry, synthesis of information, and writing of report by Horticulturist, Historical Landscape Architect, and SCA Intern, **6 weeks**
 - Compilation of Report, Review, and Editing by Historic Landscape Architect, Park Staff, and others, **2 weeks**
- Total Estimated Project Time: 10 weeks**

Roles and Responsibilities

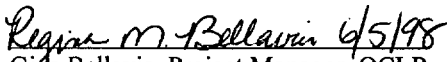
- **Park Contact:** Greg Waters, Horticulturist, WEFA NHS, serves as the park contact for this project as well as key project team member responsible for assisting with inventory and condition assessment, preparing horticultural recommendations, assisting with the preparation of maintenance calendars, and review of draft report.
- **Project Manager:** Gina Bellavia, Historical Landscape Architect, will provide project guidance for the Olmsted Center for Landscape Preservation including project scoping, preparation of project agreement, work management, schedule coordination, budget tracking and review and editing of all drafts and final products.
- **Marybeth Hanley**, SCA Intern, will assist with field inventory and condition assessment, complete data entry, prepare reports, research current horticultural information and maintenance techniques as necessary, and help prepare all drafts and final products.
- **Olmsted Center Staff**, Historical Landscape Architects and Horticulturists, will be available to provide technical assistance and review of all drafts and final products as deemed necessary by project manager.

Project Budget

Salaries	\$ 17,340.80
Travel	\$ 1,822.00
Supplies & Materials	\$ 135.00
Printing & Reproduction	\$ 150.00
TOTAL:	\$ 19,447.80

Recommended By:

 6/15/98
Bob Fox, Chief of Maintenance, WEFA

 6/5/98
Gina Bellavia, Project Manager, OCLP

Concurred By:

 4/15/98
Sarah Olson, Superintendent, WEFA

 5/28/98
Charlie Pepper, Deputy Director, OCLP

Olmsted Center for Landscape Preservation
Amendment to Project Agreement



Weir Farm National Historic Site
Preservation Maintenance Plan

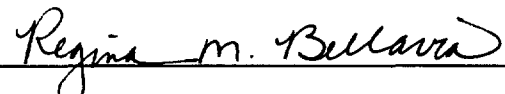
This amendment to the project agreement, *Weir Farm National Historic Site Preservation Maintenance Plan* (dated May 28, 1998), documents a change in the final project submittal date from September 1998 to December 4, 1998.

Recommended By:



Bob Fox, Chief of Maintenance, WEFA

11/13/98
Date



Gina Bellavia, Project Manager, OCLP

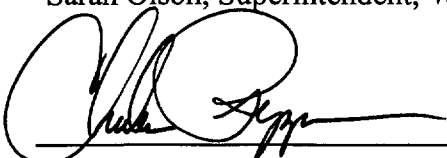
11/3/98
Date

Concurred By:



Sarah Olson, Superintendent, WEFA

11/12/98
Date



Charles Pepper, Acting Director, OCLP

11/5/98
Date

APPENDIX F: Cross-Referenced Plant List

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
B-T-1	BT-3 - 9	Shagbark hickory <i>Carya ovata</i>
B-T-2	BT-3 - 8	Sugar maple <i>Acer saccharum</i>
B-T-3	BT-3 - 7	Red maple <i>Acer rubrum</i>
B-T-4	BT-3 - 6	Sugar maple <i>Acer saccharum</i>
B-T-5	BT-3 - 5	Shagbark hickory <i>Carya ovata</i>
B-T-6	BT-3 - 4	Sugar maple <i>Acer saccharum</i>
B-T-7	BT-3 - 3	Sugar maple <i>Acer saccharum</i>
B-T-8	BT-2 - 12	Red cedar <i>Juniperus virginiana</i>
B-T-9	BT-2 - 13	Shagbark hickory <i>Carya ovata</i>
B-T-10	BT-2 - 15	Crabapple <i>Malus species</i>
B-T-11	BT-1 - 15	Sugar maple <i>Acer saccharum</i>
B-T-12	BT-1 - 14	Sugar maple <i>Acer saccharum</i>
B-T-13	BT-1 - 13	Sugar maple <i>Acer saccharum</i>
B-T-14	BT-1 - 11	Sugar maple <i>Acer saccharum</i>
B-T-15	BT-1 - 10	Sugar maple <i>Acer saccharum</i>
B-T-16	BT-7 - 13	Sugar maple <i>Acer saccharum</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
B-T-17	BT-7 - 12	Sugar maple <i>Acer saccharum</i>
B-T-18	BT-7 - 11	Sugar maple <i>Acer saccharum</i>
B-T-19	BT-7 - 10	Sugar maple <i>Acer saccharum</i>
B-T-20	BT-7 - 9	Sugar maple <i>Acer saccharum</i>
B-T-21	BT-7 - 8	Sugar maple <i>Acer saccharum</i>
B-T-22	BT-7 - 7	Sugar maple <i>Acer saccharum</i>
B-T-23	BT-7 - 6	Sugar maple <i>Acer saccharum</i>
B-T-24	BT-7 - 5	White ash <i>Fraxinus americana</i>
B-T-25	BT-7 - 4	Sugar maple <i>Acer saccharum</i>
B-T-26	BT-7 - 3	Sugar maple <i>Acer saccharum</i>
B-T-27	BT-6 - 8	Red maple <i>Acer rubrum</i>
B-T-28	BT-6 - 7	Red maple <i>Acer rubrum</i>
B-T-29	BT-6 - 6	Red maple <i>Acer rubrum</i>
B-T-30	BT-6 - 5	Black gum <i>Nyssa sylvatica</i>
B-T-31	BT-6 - 4	Red maple <i>Acer rubrum</i>
B-T-32	BT-6 - 3	Red maple <i>Acer rubrum</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name Scientific Name
B-T-33	BT-6 - 2	Red maple <i>Acer rubrum</i>
B-T-34	BT-6 - 1	Red maple <i>Acer rubrum</i>
B-T-35	BT-6 - 11	Red cedar <i>Juniperus virginiana</i>
B-T-36	BT-6 - 10	Red cedar <i>Juniperus virginiana</i>
B-T-37	BT-6 - 9	Red maple <i>Acer rubrum</i>
B-T-38	BT-7 - 2	Red cedar <i>Juniperus virginiana</i>
B-T-39	BT-7 - 1	Red cedar <i>Juniperus virginiana</i>
B-T-40	BT-6 - 12	Red maple <i>Acer rubrum</i>
B-T-41	BT-7 - 14	Sugar maple <i>Acer saccharum</i>
B-T-42	BT-1 - 1	Red cedar <i>Juniperus virginiana</i>
B-T-43	BT-1 - 2	Sugar maple <i>Acer saccharum</i>
B-T-44	BT-6 - 14	Crabapple <i>Malus species</i>
B-T-45	BT-6 - 15	Black birch <i>Betula lenta</i>
B-T-46	BT-5 - 6	Red cedar <i>Juniperus virginiana</i>
B-T-47	BT-5 - 2	Chinese chestnut <i>Castanea mollissima</i>
B-T-48	BT-5 - 1	Chinese chestnut <i>Castanea mollissima</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
B-T-49	BT-5 - 4	Ornamental cherry <i>Prunus species</i>
B-T-50	BT-5 - 5	Sugar maple <i>Acer saccharum</i>
B-T-51	BT-2 - 7	Tree of heaven <i>Ailanthus altissima</i>
B-T-52	BT-2 - 6	American holly <i>Ilex opaca</i>
B-T-53	BT-2 - 5	Apple <i>Malus species</i>
B-T-54	BT-2 - 4	Pear <i>Pyrus species</i>
B-T-55	BT-2 - 3	Apple <i>Malus species</i>
B-T-56	BT-2 - 2	Pignut hickory <i>Carya glabra</i>
B-T-57	-	Common sassafras <i>Sassafras albidum</i>
B-T-58	BT-2 - 8	Higan (weeping) cherry <i>Prunus subhirtella</i>
B-T-59	BT-2 - 9	Green ash <i>Fraxinus pennsylvanica</i>
B-T-60	BT-2 - 10	Sugar maple <i>Acer saccharum</i>
B-T-61	BT-2 - 11	Apple <i>Malus species</i>
B-T-62	BT-3 - 1	Sugar maple <i>Acer saccharum</i>
B-T-63	BT-3 - 2	Sugar maple <i>Acer saccharum</i>
B-T-64	BT-2 - 1	Sugar maple <i>Acer saccharum</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
B-T-65	BT-1 - 6	Crabapple <i>Malus species</i>
B-T-66	BT-1 - 5	Crabapple <i>Malus species</i>
B-T-67	BT-1 - 7	Thornless honeylocust <i>Gleditsia triacanthos</i>
B-T-68	BT-1 - 3	American arborvitae <i>Thuja occidentalis</i>
B-T-69	BT-1 - 9	Flowering dogwood <i>Cornus florida</i>
B-T-70	BT-1 - 8	Pear <i>Pyrus species</i>
B-T-71	BT-6 - 16	Red maple <i>Acer rubrum</i>
B-T-72	BT-1 - 12	Flowering dogwood <i>Cornus florida</i>
B-T-73	BT-5 - 3	Red oak <i>Quercus rubra</i>
B-T-74	BT-6 - 13	White ash <i>Fraxinus americana</i>
B-T-75	BT-2 - 13	Sugar maple <i>Acer saccharum</i>
B-T-76	BT-2 - 14	Ornamental cherry <i>Prunus species</i>
B-T-77	BT-1 - 16	Black birch <i>Betula lenta</i>
	BO-3 - 10	Apple <i>Malus species</i>
	BO-3 - 11	Apple <i>Malus species</i>
	BO-3 - 12	Apple <i>Malus species</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
	BO-3 - 13	Apple <i>Malus species</i>
	BO-3 - 14	Apple <i>Malus species</i>
	BO-3 - 15	Apple <i>Malus species</i>
	BO-3 - 16	Apple <i>Malus species</i>
	BO-3 - 17	Apple <i>Malus species</i>
	BO-3 - 18	Apple <i>Malus species</i>
	BO-3 - 19	Apple <i>Malus species</i>
	BO-3 - 20	Apple <i>Malus species</i>
	BO-3 - 21	Apple <i>Malus species</i>
	BO-3 - 22	Apple <i>Malus species</i>
	BO-3 - 23	apple <i>Malus species</i>
B-S-1	BS-2 - 6	Forsythia <i>Forsythia species</i>
B-S-2	BS-2 - 8	Winged Euonymus <i>Euonymus alatus</i>
B-S-3	BS-2 - 9	Winged Euonymus <i>Euonymus alatus</i>
B-S-4	BS-1 - 30	Rosebay rhododendron <i>Rhododendron maximum</i>
B-S-5	BS-1 - 10	Common lilac <i>Syringa vulgaris</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
B-S-6	BS-1 - 9	Tatarian honeysuckle <i>Lonicera tatarica</i>
B-S-7	BS-1 - 7	Common lilac <i>Syringa vulgaris</i>
B-S-8	BS-1 - 2	Multiflora rose <i>Rosa multiflora</i>
B-S-9	BS-1 - 3	Common lilac <i>Syringa vulgaris</i>
B-S-10	BS-2 - 1	Common lilac <i>Syringa vulgaris</i>
B-S-11	BS-1 - 4	Tatarian honeysuckle <i>Lonicera tatarica</i>
B-S-12	BS-1 - 5	Tatarian honeysuckle <i>Lonicera tatarica</i>
B-S-13	BS-5 - 1	Tatarian honeysuckle <i>Lonicera tatarica</i>
B-S-14	BS-2 - 3	Sweet mockorange <i>Philadelphus coronarius</i>
B-S-15	BS-2 - 4	Sweet mockorange <i>Philadelphus coronarius</i>
B-S-16	BS-2 - 5	Multiflora rose <i>Rosa multiflora</i>
B-S-17	BS-2 - 2	Common lilac <i>Syringa vulgaris</i>
B-S-18	BS-2 - 7	Beautybush <i>Kolkwitzia amabilis</i>
B-S-19	BS-1 - 24	Common box <i>Buxus sempervirens</i>
B-S-20	BS-1 - 23	Japanese pieris <i>Pieris japonica</i>
B-S-21	BS-1 - 22	Common lilac <i>Syringa vulgaris</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
B-S-22	BS-1 - 21	Common lilac <i>Syringa vulgaris</i>
B-S-23	BS-1 - 20	Littleleaf boxwood <i>Buxus microphylla</i>
B-S-24	BS-1 - 19	Catawba rhododendron <i>Rhododendron catawbiense</i>
B-S-25	BS-1 - 18	Common lilac <i>Syringa vulgaris</i>
B-S-26	BS-1 - 17	Mountain pieris <i>Pieris floribunda</i>
B-S-27	BS-1 - 15	Catawba rhododendron <i>Rhododendron catawbiense</i>
B-S-28	BS-1 - 14	Mountain pieris <i>Pieris floribunda</i>
B-S-29	BS-1 - 13	Common lilac <i>Syringa vulgaris</i>
B-S-30	BS-1 - 12	Yew <i>Taxus species</i>
B-S-31	BS-1 - 11	Mountain laurel <i>Kalmia latifolia</i>
B-S-32	BS-1 - 7	Common lilac <i>Syringa vulgaris</i>
B-S-33	BS-1 - 6	Late lilac <i>Syringa villosa</i>
B-S-34	BS-1 - 27	Common box <i>Buxus sempervirens</i>
B-S-35	BS-1 - 26	Japanese wisteria <i>Wisteria floribunda</i>
B-S-36	BS-1 - 25	Common trumpetcreeper <i>Campsis radicans</i>
B-S-37	BS-1 - 28	Old fashioned weigela <i>Weigela florida</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
B-S-38	BS-1 - 29	Rose <i>Rosa species</i>
B-S-39	BS-1 - 31	Mountain laurel <i>Kalmia latifolia</i>
W-T-1	WT-3 - 1	Scarlet oak <i>Quercus coccinea</i>
W-T-2	WT-3 - 2	Scarlet oak <i>Quercus coccinea</i>
	WT-3 - 3	Red maple <i>Acer rubrum</i>
W-T-3	WT-3 - 5	Pignut hickory <i>Carya glabra</i>
W-T-4	WT-3 - 4	Red maple <i>Acer rubrum</i>
W-T-5	WT-3 - 6	Red maple <i>Acer rubrum</i>
W-T-6	WT-1 - 31	Red maple <i>Acer rubrum</i>
W-T-7	WT-1 - 28	Scarlet oak <i>Quercus coccinea</i>
W-T-8	WT-1 - 25	Sugar maple <i>Acer saccharum</i>
W-T-9	WT-1 - 24	Sugar maple <i>Acer saccharum</i>
	BS-1 - 8	Common Lilac <i>Syringa vulgaris</i>
	BS-1 - 16	Catawba Rhododendron <i>Rhododendron catawbiense</i>
	WS-2 - 3	Common Lilac <i>Syringa vulgaris</i>
	WO-2 - 1	Apple <i>Malus species</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
	WO-2 - 2	Apple <i>Malus species</i>
	WO-2 - 3	Apple <i>Malus species</i>
	WO-2 - 4	Apple <i>Malus species</i>
	WO-2 - 5	Apple <i>Malus species</i>
	WO-2 - 6	Apple <i>Malus species</i>
	WO-2 - 7	Apple <i>Malus species</i>
	WO-2 - 8	Apple <i>Malus species</i>
	WO-2 - 9	Apple <i>Malus species</i>
	WO-2 - 10	Apple <i>Malus species</i>
	WO-2 - 11	Apple <i>Malus species</i>
W-T-10	WT-1 - 23	Red oak <i>Quercus rubra</i>
W-T-11	WT-1 - 22	Sugar maple <i>Acer saccharum</i>
W-T-12	WT-1 - 21	Red oak <i>Quercus rubra</i>
W-T-13	WT-1 - 20	Slippery elm <i>Ulmus rubra</i>
W-T-14	WT-1 - 19	Slippery elm <i>Ulmus rubra</i>
W-T-15	WT-1 - 18	Sugar maple <i>Acer saccharum</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
W-T-16	WT-1 - 17	Slippery elm <i>Ulmus rubra</i>
W-T-17	WT-1 - 16	Slippery elm <i>Ulmus rubra</i>
W-T-18	WT-1 - 15	Sugar maple <i>Acer saccharum</i>
W-T-19	WT-2 - 14	Shagbark hickory <i>Carya ovata</i>
W-T-20	WT-4 - 9	Red cedar <i>Juniperus virginiana</i>
W-T-21	WT-4 - 8	White ash <i>Fraxinus americana</i>
W-T-22	WT-4 - 7	White ash <i>Fraxinus americana</i>
W-T-23	WT-4 - 6	Shagbark hickory <i>Carya ovata</i>
W-T-24	WT-4 - 5	Red maple <i>Acer rubrum</i>
W-T-25	WT-4 - 4	Shagbark hickory <i>Carya ovata</i>
W-T-26	WT-4 - 3	White ash <i>Fraxinus americana</i>
W-T-27	WT-4 - 2	White ash <i>Fraxinus americana</i>
W-T-28	WT-4 - 1	Shagbark hickory <i>Carya ovata</i>
W-T-29	WT-2 - 13	Norway spruce <i>Picea abies</i>
W-T-30	WT-2 - 15	Sugar maple <i>Acer saccharum</i>
W-T-31	WT-2 - 16	Sugar maple <i>Acer saccharum</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
W-T-32	WT-2 - 17	Sugar maple <i>Acer saccharum</i>
W-T-33	WT-2 - 18	Sugar maple <i>Acer saccharum</i>
W-T-34	WT-2 - 19	Black cherry <i>Prunus serotina</i>
W-T-35	WT-2 - 20	Red oak <i>Quercus rubra</i>
W-T-36	WT-2 - 21	Shagbark hickory <i>Carya ovata</i>
W-T-37	WT-1 - 14	Red oak <i>Quercus rubra</i>
W-T-38	WT-1 - 13	Crabapple <i>Malus species</i>
W-T-39	WT-1 - 9	Plum <i>Prunus species</i>
W-T-40	WT-1 - 8	Black cherry <i>Prunus serotina</i>
W-T-41	WT-1 - 1	Crabapple <i>Malus species</i>
W-T-42	WT-1 - 2	Shagbark hickory <i>Carya ovata</i>
W-T-43	WT-1 - 3	?Oak <i>Quercus species</i>
W-T-44	WT-1 - 4	Pear <i>Pyrus species</i>
W-T-45	WT-1 - 5	Crabapple <i>Malus species</i>
W-T-46	WT-1 - 6	Elm <i>Ulmus species</i>
W-T-47	WT-1 - 7	Mulberry <i>Morus species</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
W-T-48	WT-1 - 10	Pear <i>Pyrus species</i>
W-T-49	WT-1 - 11	Plum <i>Prunus species</i>
W-T-50	WT-1 - 29	Pignut hickory <i>Carya glabra</i>
W-T-51	WT-1 - 27	Red oak <i>Quercus rubra</i>
W-T-52	WT-1 - 26	Canadian hemlock <i>Tsuga canadensis</i>
W-T-53	WT-1 - 12	White mulberry <i>Morus alba</i>
W-T-54	WT-3 - 3	Red maple <i>Acer rubrum</i>
W-T-55	WT-1 - 30	White ash <i>Fraxinus americana</i>
W-T-56	WT-1 - 32	Sugar maple <i>Acer saccharum</i>
W-T-57	WT-1 - 33	Sugar maple <i>Acer saccharum</i>
W-T-58	WT-1 - 34	Sugar maple <i>Acer saccharum</i>
W-T-59	WT-1 - 35	Pignut hickory <i>Carya glabra</i>
W-T-60	WT-1 - 36	White ash <i>Fraxinus americana</i>
W-T-61	WT-2 - 22	
W-T-62	WT-2 - 23	White oak <i>Quercus alba</i>
W-T-63	WT-1 - 37	Crabapple. <i>Malus species (?)</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
W-T-64	WT-2 - 24	Shagbark hickory <i>Carya ovata</i>
W-T-65	WT-1 - 38	Pear <i>Pyrus</i>
	WT-1 - 39	Pear <i>Pyrus</i>
W-T-66	WT-1 - 40	Common sassafras <i>Sassafras albidum</i>
W-S-1	WS-1 - 3	Common lilac <i>Syringa vulgaris</i>
W-S-2	WS-1 - 4	Common lilac <i>Syringa vulgaris</i>
W-S-3	WS-1 - 6	Common lilac <i>Syringa vulgaris</i>
W-S-4	WS-1 - 7	Common lilac <i>Syringa vulgaris</i>
W-S-5	WS-1 - 5	Old fashioned weigela <i>Weigela florida</i>
W-S-6	WS-1 - 2	Common lilac <i>Syringa vulgaris</i>
W-S-7	WS-1 - 1	Fuzzy deutzia <i>Deutzia scabra</i>
	WT-2 - 12	Apple <i>Malus species</i>
W-S-8	WS-2 - 2	Fuzzy deutzia <i>Deutzia scabra</i>
W-S-9	WS-2 - 1	Privet <i>Ligustrum</i>
W-S-10	WS-1 - 13	Giant dogwood <i>Cornus controversa</i>
W-S-11	WS-1 - 8	Common trumpet creeper <i>Campsis radicans</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# CLR Volume II	New ID# Preservation Maintenance Plan	Common Name Scientific Name
W-S-12	WS-1 - 9	Common trumpetcreeper <i>Campsis radicans</i>
W-S-13	WS-1 - 10	Boxwood <i>Buxus</i>
W-S-14	WS-1 - 11	Boxwood <i>Buxus</i>
W-S-15	WS-1 - 12	Boxwood <i>Buxus</i>
W-S-16	WS-1 - 13	Common lilac <i>Syringa vulgaris</i>
PW-T-1	PWT-3 - 1	Sugar maple <i>Acer saccharum</i>
PW-T-2	PWT-3 - 2	Shagbark hickory <i>Carya ovata</i>
PW-T-3	PWT-3 - 3	Sugar maple <i>Acer saccharum</i>
PW-T-4	PWT-3 - 10	Sugar maple <i>Acer saccharum</i>
PW-T-5	PWT-3 - 15	Sugar maple <i>Acer saccharum</i>
PW-T-6	PWT-3 - 16	Sassafras <i>Sassafras albidum</i>
PW-T-7	PWT-3 - 4	Sugar maple <i>Acer saccharum</i>
PW-T-8	PWT-3 - 5	Red maple <i>Acer rubrum</i>
PW-T-9	PWT-3 - 6	Red cedar <i>Juniperus virginiana</i>
PW-T-10	PWT-3 - 8	Scarlet oak <i>Quercus coccinea</i>
PW-T-11	PWT-3 - 11	Red cedar <i>Juniperus virginiana</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
PW-T-12	PWT-3 - 12	Sassafras <i>Sassafras albidum</i>
PW-T-13	PWT-3 - 13	Apple <i>Malus species</i>
PW-T-14	PWT-3 - 18	Shagbark hickory <i>Carya ovata</i>
PW-T-15	PWT-4 - 1	Sugar maple <i>Acer saccharum</i>
PW-T-16	PWT-1 - 1	Sugar maple <i>Acer saccharum</i>
PW-T-17	PWT-1 - 3	Sugar maple <i>Acer saccharum</i>
PW-T-18	PWT-1 - 5	Slippery elm <i>Ulmus rubra</i>
PW-T-19	PWT-1 - 4	Red cedar <i>Juniperus virginiana</i>
PW-T-20	PWT-1 - 7	Sugar maple <i>Acer saccharum</i>
PW-T-21	PWT-1 - 8	Sugar maple <i>Acer saccharum</i>
PW-T-22	PWT-1 - 6	American ash <i>Fraxinus americana</i>
PW-T-23	PWT-2 - 1	Sugar maple <i>Acer saccharum</i>
PW-T-24	PWT-4 - 2	Red maple <i>Quercus rubra</i>
PW-T-25	PWT-3 - 7	Sugar maple <i>Acer saccharum</i>
PW-T-26	PWT-3 - 9	Sugar maple <i>Acer saccharum</i>
PW-T-27	PWT-3 - 14	Apple <i>Malus species</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

Weir Farm National Historic Site
Cross-Referenced Plant List

Old ID# <i>CLR Volume II</i>	New ID# <i>Preservation Maintenance Plan</i>	Common Name <i>Scientific Name</i>
PW-T-28	PWT-3 - 17	Black gum <i>Nyssa sylvatica</i>
PW-T-29	PWT-1 - 2	Slippery elm <i>Ulmus rubra</i>
PW-S-1	PWS-1 - 1	Common lilac <i>Syringa vulgaris</i>
PW-S-2	PWS-1 - 2	Common lilac <i>Syringa vulgaris</i>
PW-S-3	PWS-1 - 6	Common lilac <i>Syringa vulgaris</i>
PW-S-4	PWS-1 - 5	Fuzzy deutzia <i>Deutzia scabra</i>
PW-S-5	PWS-1 - 4	Amur privet <i>Ligustrum amurense</i>
PW-S-6	PWS-1 - 3	Amur privet <i>Ligustrum amurense</i>
PW-S-7	PWS-1 - 7	Forsythia <i>Forsythia species</i>
PW-S-8	PWS-3 - 1	Amur privet <i>Ligustrum amurense</i>
	BT-1 - 4	Flowering Dogwood <i>Cornus florida</i>
B-S-1	BS-1 - 1	Honeysuckle <i>Lonicera tatarica</i>

*If a new identification number exists but an old identification number is missing, the plant was not identified for the purposes of the CLR Volume II but was identified in 1998 for the Landscape Preservation Maintenance Plan.

RECORD KEEPING

Weir Farm National Historic Site

RECORD KEEPING - FEATURE:

Record notes on measurements, conditions, work performed, reason for removal, replacement or installation, propagation method and growing location, status of feature, or reference to a related report, etc.

[illegible]