

The **ARNOLD**
ARBORETUM
of **HARVARD UNIVERSITY**



LANDSCAPE
MANAGEMENT PLAN

SPRING 2008 - 2ND EDITION

Arnold Arboretum

Landscape Management Plan—Excerpt

This excerpt from the Arnold Arboretum's 2008 Landscape Management Plan, a document of over 300 pages, was prepared to assist sister arboreta, botanic gardens and other public landscapes. It offers representative samples of our approach to managing a 265-acre landscape that is a National Historic Landmark and home to over 15,000 accessioned plants.

Arnold Arboretum staff hope that this plan will be of some value to our professional community; we welcome inquiries about its implementation and continuing development.

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(Listed from left to right.)

Top: Robert Mayer (Blackpoll Warbler); Jon Hetman (Cork Trees); Unknown (*Pseudolarix amabilis*)

Middle: Michael Dosmann (Linden Collection); Jon Hetman (*Magnolia* 'Elizabeth')

Bottom: Robert Mayer (*Betula papyrifera* var. *commutata*); Richard Schulhof (*R. calendulaceum* 'Smokey Mountaineer'); Unknown (*Syringa* sp.)

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Introduction

STATEMENT OF PURPOSE

The Landscape Management Plan is the result of three years of investigation and planning by the Horticulture Department of the Arnold Arboretum. It is a detailed game plan that communicates the shared goals and priorities collectively developed by the horticulture team. The Plan's goal is to achieve exemplary standards of horticultural care and management that provide optimal growing conditions for our collections, enhance the ecological health of the Arboretum environment, and present a landscape of outstanding quality for visitors, students, the surrounding community and other key constituencies.

Expanding on the 2007 plan, this second edition incorporates the contributions of our horticultural technologists and arborists, who have provided essential detail relating to management priorities for specific areas. In addition, new contributions from the department management team include priorities for plant health, curation, cultural resource management, and pest and weed management as well as longer-term landscape development.

MANAGEMENT APPROACH: ORGANIZATION AND TERMS

Addressing the full range of biotic and abiotic elements that comprise the Arnold Arboretum environment, analysis has included botanical collections, natural areas, soils, pests and diseases, hardscape and perimeter elements, and visitor needs and impacts. Management activities are organized within a geographical framework that divides the landscape into regions and zones:

Regions: The landscape is organized into 6 regions broadly defined by topography (Bussey, Hemlock and Peters hills), landscape type (natural areas vs. collections areas vs. urban wild) and management needs. Regions facilitate the broader-scale assignment of tree-work, spraying, and hardscape and perimeter maintenance.

Zones: The plan organizes the landscape into 62 management zones that provide a structure for staff assignment and identify specific care needs and projects for collections and landscape areas. Zones encompass areas that are contiguous and share similar challenges, collections themes or management requirements. Zones are treated as a unit with common specifications for daily, monthly and annual care. Specifications are written to attain targeted standards of care and presentation.

The following information is provided to guide the care and management of each zone:

Management Priority: Zones are designated as “high”, “moderate” or “low” priority based upon their relative importance within a given year, as determined by the Manager of Horticulture. Priorities may vary annually, depending on special projects, particular landscape issues (e.g., pest outbreaks, winter damage, etc.) and larger organizational needs.

ORGANIZATION AND TERMS (CONT'D)

Management Intensity: The amount of resources (staff time, equipment and materials, team support, etc.) needed to maintain a given zone at the desired standard is designated as:

High: Intensive care requirements stemming from design (Leventritt Garden, Bradley Collection), visual prominence (Hunnewell Building landscape) or care needs (lilac collection).

Moderate: Areas comprising tree collections (*Tilia*, *Fagus*, etc.) or lower-care shrub beds (legume beds).

Low: Natural areas (North Woods) and urban wilds (Mesa) requiring lesser amounts of care.

Area Profile: A general profile of each area describes distinguishing characteristics, unique resources, history and special challenges.

Special Priorities: Tasks and projects of high priority that require ongoing attention and commitment.

Annual Care Plan: All tasks needed to maintain an area are listed by season, in descending order of priority.

Noxious Weeds: Extant weed species requiring management.

Pests and Diseases: Pests and diseases that are currently a problem or may be in the future.

Curation: Curatorial plans or priorities within a zone.

Long-Term Projects/Tasks: Projects and tasks to be accomplished by Arboretum staff, within the annual operating budget, are listed for each zone within a 2-5 year time frame. These include landscape improvements, plant acquisition, vegetation management, restoration projects, and pest and disease abatement.

Capital Projects: These larger projects require capital investment outside the operating budget. They include hardscape design and construction, irrigation and other projects to be completed within 3-5 years.

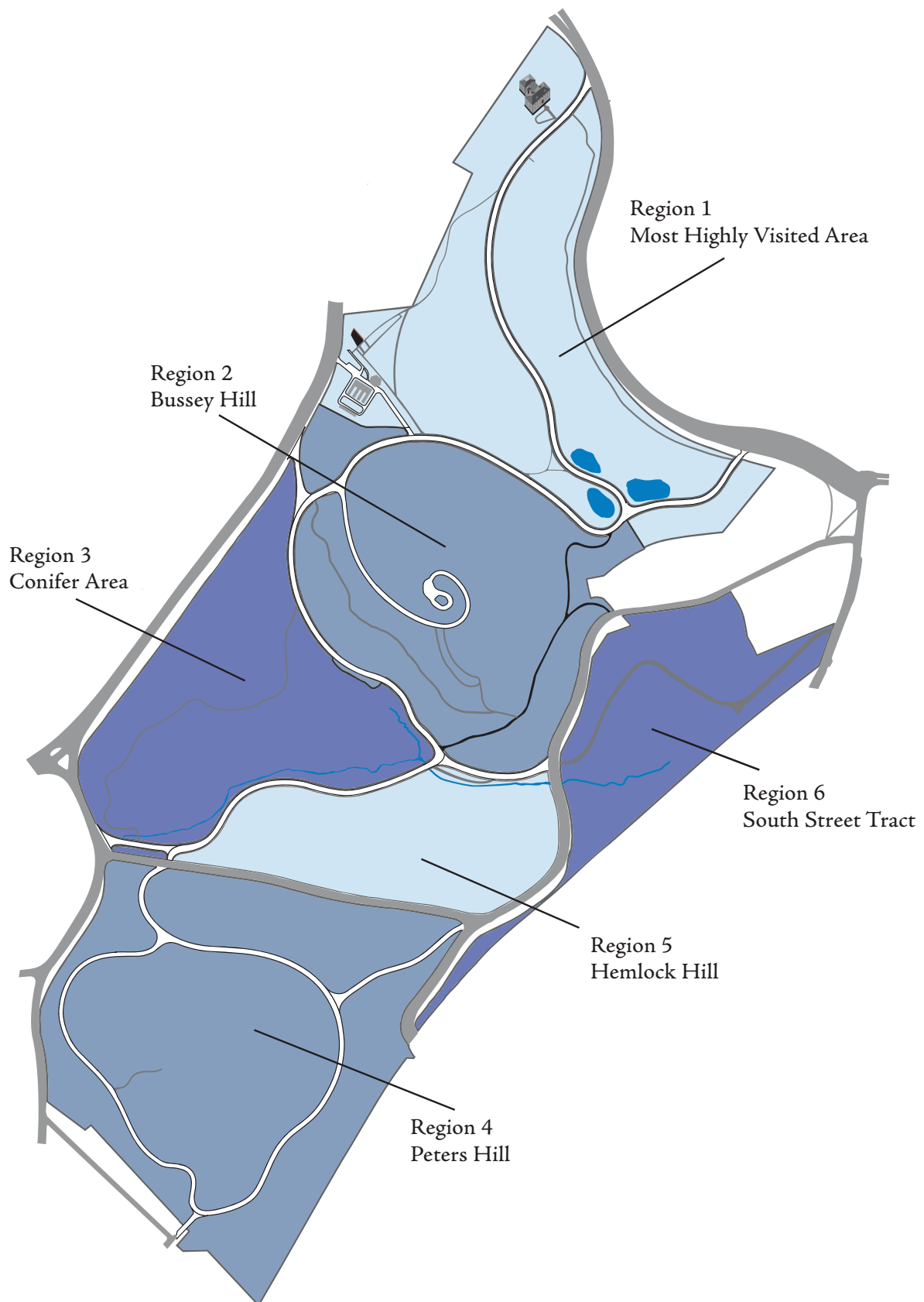
KEEPING THE MOMENTUM: ONGOING ASSESSMENT AND PLANNING

The Landscape Management Plan (LMP) is a snap-shot of current standards and strategies for continuous improvement of the Arnold Arboretum landscape and collections. Implicit in this approach is an annual process of self-assessment and team review. At the close of the 2008 growing season, horticultural technologists, arborists and gardeners will meet with the manager of horticulture to assess progress. Staff assessment will review delivery of the care plan, needed adjustments to resource allocation and scheduling, and recommendations for larger revisions. Changes will be discussed in a meeting of the horticulture team and reflected in new pages distributed for 2009.

Other additions to the plan will come with increased integration of the Cultural Resources Management Plan – the comprehensive assessment completed in support of the Institutional Master Plan and submitted to the City of Boston in 2006. As part of the project work of the manager of plant health, preservation measures for historical features will be added to the 2009 LMP.

Other additions will result from the Collections Development Plan. To be completed by our curator in fall 2008, this comprehensive 5-year vision for the living collections will provide additional indication of pending changes and actions within zones (e.g., scheduled curatorial reviews, development of high-priority collections, etc.).

Arnold Arboretum Map



Region 1 Map



Region 1 - Most Highly Visited Area

	<u>Zone</u>	<u>Priority</u>	<u>Intensity</u>
1.1	Hunnewell Visitor Center Area	High	High
1.2	Landscape Surrounding the Visitor Center	Moderate	Moderate
1.3	Azalea Border along Meadow Road	High	Moderate
1.4	The Meadow	Low	Low
1.5	Willow Path & the Arborway Wall Edge	High	Moderate
1.6	The <i>Acer</i> Collection	Moderate	Low
1.7	North Woods with Accessions	Moderate	Low
1.8	Bradley Rosaceous Collection	High	High
1.9	The Three Ponds: Rehder, Dawson, Faxon	High	High
1.10	Mass State Lab Slope & Forest Hills Gate Area	Low	High
1.11	Legumes, including Shrubs	Moderate	Moderate
1.12	<i>Zelkova</i> and Area Below the Esker	Moderate	Low
1.13	Leventritt Shrub and Vine Garden	High	High
1.14	Linden Path, including Beds	High	Moderate
1.15	<i>Leitneria</i> Bowl to Bamboo	Moderate	High
1.16	<i>Aesculus</i> , <i>Tilia</i> , <i>Phellodendron</i> and <i>Cornus</i>	Moderate	Low
1.17	North Woods	Low	Moderate
1.18	Dana Greenhouse, Nurseries and Bonsai	High	High

1.1 Hunnewell Visitor Center Area

High Priority
High Intensity



Hunnewell Building, Richard Schulhof.

AREA PROFILE

The Hunnewell Building Visitor Center landscape serves as the principal gateway to the Arboretum for arriving visitors and is the first impression of many first-time guests, students and visitors. Because of its strong image-making value, this area will receive the highest standard of maintenance. The care and presentation demands of its diverse landscape areas—Arborway Gate, turf around magnolias, high-quality accessions, bed plantings in front of building—require constant diligence.

SPECIAL PRIORITIES

Keep the front gate and all beds completely free of litter through daily sweeps through area. Summer nighttime activity requires daily sweeps. Weed control around entry drive and gates as well as steps and mulch beds in landscape facing building. Provide supplemental irrigation as needed to establish shrub plantings in front of pillars. Turf should be maintained to the Arboretum's highest standard, mostly free of broadleaf weeds and reseeded as needed.

ARBORICULTURE

Due to its close proximity to the Hunnewell Building, this zone has a high management intensity level. Frequent visits throughout the year will be necessary to maintain the high standard of maintenance this zone warrants, especially the magnolias that decorate the front and sides of the Hunnewell Building. Because several specimens are of advanced age or otherwise in decline, frequent visits will be required to remove dead or dying branches. However, due to the trees' smaller stature and numbers, the visits to Zone 1.1 should not require much time.

ANNUAL CARE PLAN

All Seasons

- ✦ Remove weeds from all display beds and mulched areas around trees. Also keep pavement cracks and edges weed-free.
- ✦ Maintain clean edge to turf along entry paths to Hunnewell Building.
- ✦ Provide supplemental irrigation, as needed, to all plantings.
- ✦ Monitor newly planted accessions, investigate problems, and take appropriate action.
- ✦ Chip brush.
- ✦ Apply herbicides around gates, pavement areas and edges as needed.
- ✦ Prune all dead wood within reach.
- ✦ Keep fence areas free of weed vines.
- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Report needs for additional tags to Plant Records office by filling out a Plant Care Request Form.
- ✦ Refer to Mowing Operations (Appendix A).

Spring

- ✦ Aerate all grass areas. (Or Fall) NOTE: Be aware of irrigation lines.
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Test irrigation system.
- ✦ Winterize turf.
- ✦ Remove leaf litter from shrub beds.
- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2”.
- ✦ Create mulch rings around trees. Apply double-ground mulch at a depth of 2” to all trees.
- ✦ Top dress and seed lawn areas where needed.

Summer

- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2”.
- ✦ Create mulch rings around trees. Apply double-ground mulch at a depth of 2” to all trees.
- ✦ Monitor soils for moisture. Preempt drought stress with irrigation, if necessary.

Fall

- ✦ Aerate all grass areas. (Or Spring)
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Fertilize turf.
- ✦ Remove leaf litter from shrub beds and lawn.
- ✦ Top dress and seed lawn areas where needed.
- ✦ Cut back herbaceous material.
- ✦ Winterize irrigation system.
- ✦ Prune vines on the building. Prune them away from windows and keep them below the dentil brick work.
- ✦ Install pathway markers for snow removal.

Winter

- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Remove all basal sprouts from trees; secure assistance of arborist as necessary.
- ✦ Refer to Snow Removal Operations (Appendix B).

NOXIOUS WEEDS

Common Name	Scientific Name	Treatment	Schedule
Buttercup	<i>Ranunculus ficaria</i>	Glyphosate, Hand pull	Spring
Black Swallow-wort	<i>Cynanchum louiseae</i>	Glyphosate, Triclopyr (Weed B Gon®), Glufosinate-ammonium (Finale®), Flame torch	Spring, Summer, Fall
Broadleaf weeds (beds)		Glyphosate, Glufosinate-ammonium (Finale®), Hand pull	Spring, Summer
Broadleaf weeds (turf)		Triclopyr (Weed B Gon®), Glufosinate-ammonium (Finale®), Corn gluten meal, Dicamba (Eliminate-D™)	Spring, Fall
Garlic Mustard	<i>Alliaria petiolata</i>	Glyphosate, Hand pull, String trim	Early Summer through late Fall

PESTS AND DISEASE

Common Name	Scientific Name	Treatment	Schedule
Winter Moth	<i>Operophtera brumata</i>	<i>Bacillus thuringiensis Kurstaki</i> (Dipel), Spinosad (Conserve® SC)	Spring

CURATION

Collections Development: Evaluate all herbaceous plantings, including the 'Jennie Quigley' memorial planting in the beds around the building. Evaluate thematic collection to identify appropriate planting scheme(s) for this central location. Particular emphasis likely to be the theme of biogeography, including east-west disjuncts, so as to support interpretive use of Hunnewell Building landscape. Collaborate with the Manager of Visitor Education in developing interpretive themes and plantings.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- ✦ Prune shrubs to rejuvenate.
- ✦ Prune trees and shrubs for dead, diseased, broken and weak attachments.
- ✦ Structure prune young trees; secure assistance of arborist as necessary.

Every 3 years, or as needed

- ✦ Replant shrub beds as needed to maintain themes and accessions.
- ✦ Monitor herbaceous layer, maintain balance between *Cimicifuga*, *Xanthorhiza* and *Aruncus*.
- ✦ Monitor *Ranunculus repens*. Reduce colony if necessary.

Additional Projects

- ✦ None

CAPITAL PROJECTS

- ✦ Restoration and renovation of Arborway Gate area.
- ✦ Replace parking bumpers in front of building.
- ✦ Replace front of building with pervious pavement.

NOTES

1.13 Leventritt Shrub and Vine Garden

High Priority
High Intensity



(L) Clematis montana, Leventritt Garden. 2007. Jen Kettell.
(R) Leventritt Garden. 2007. Tony Goncalves.



AREA PROFILE

This four-acre garden was opened to the public in 2002 and features a diverse array of over 300 sun-loving ornamental shrubs and trees planted in over 60 display beds, and 100 woody vines displayed on trellises and stone walls. This collection creates opportunities for teaching botany, ecology, conservation, horticulture and landscape design. The Leventritt Garden is among the most important landscapes at the Arnold Arboretum. This area will be maintained at the highest standard to represent the horticultural excellence of the Arboretum.

SPECIAL PRIORITIES

- ✦ **Vinedom**: Vines must be managed to comply with individual trellis, keeping each accessioned vine contained on its own trellis to avoid mingling and to ease curation.
- ✦ **Shrub beds**: Beds should be kept free of weeds at all times and those shrubs identified as specimens should be pruned as such.
- ✦ **Center for Plant Conservation shrubs**: Plants will require frequent pruning to maintain them as individual specimens.
- ✦ **Stone Dust Paths**: Paths should be kept weed-free at all times.

ARBORICULTURE

Currently, there are over three dozen trees in the Leventritt Garden that warrant the qualifications of the arborist crew. The majority of these trees are young, adolescent trees that will benefit from annual visits for training/structural purposes. This type of pruning practice will reduce the trees' potential to form structural defects and should help to minimize the amount of labor required to prune them as they mature.

ANNUAL CARE PLAN

All Seasons

- ✦ Remove or relocate woody debris to roadside for chipper.
- ✦ Remove weeds from all display beds and mulched areas around trees.
- ✦ Keep stone dust path clean from grass cuttings and other debris.
- ✦ Monitor path for wear and tear and erosion and rake if necessary.
- ✦ Monitor newly planted accessions, investigate problems and take appropriate action.
- ✦ Chip brush.
- ✦ Maintain clean edge along the stone dust path and edges of bed.
- ✦ Apply herbicide to stone dust paths and dry river bed to control weeds.
- ✦ Report needs for additional tags to Plant Records office by filling out a Plant Care Request Form.

Spring

- ✦ Aerate all grass areas. (Or Fall)
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Test irrigation system.
- ✦ Fertilize turf.
- ✦ Remove leaf litter from garden.
- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2”.
- ✦ Create mulch rings and apply double-ground mulch at a depth of 2” to all trees.
- ✦ Top dress and seed lawn areas where needed.

Summer

- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2”.
- ✦ Create mulch rings and apply double-ground mulch at a depth of 2” to all trees.
- ✦ Prune vines to maintain a comfortable walkway through the path entering the pavilion and along the “Great Wall” so there is a 3’ wide and 6’ high clearance through the center.
- ✦ Monitor soils for moisture. Preempt drought stress with irrigation, if necessary.

Fall

- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Aerate all grass areas. (Or Spring)
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Fertilize turf.
- ✦ Remove leaf litter from garden.
- ✦ Prune vines to maintain a comfortable walkway through the path entering the pavilion and along the “Great Wall” so there is a 3’ wide and 6’ high clearance through the center.
- ✦ Top dress and seed lawn areas where needed.
- ✦ Winterize irrigation system.

Winter

- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Remove all basal sprouts from trees; secure assistance of arborist as necessary.
- ✦ Add stone dust to path where needed.
- ✦ Coppice selected shrubs (*Salix*, *Cornus*).

NOXIOUS WEEDS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Black Swallow-wort	<i>Cynanchum louiseae</i>	Glyphosate, Triclopyr (Brush B Gon®), Glufosinate-ammonium (Finale®), Flame torch	Spring, Summer, Fall
Broadleaf weeds (turf)		Triclopyr (Weed B Gon®), Glufosinate-ammonium (Finale®), Corn gluten meal, Dicamba (Eliminate-D®)	Spring, Fall
Garlic Mustard	<i>Alliaria petiolata</i>	Glyphosate, Hand pull, String trim	Early Summer through late Fall
Yellow Nutsedge	<i>Cyperus esculentus</i>	Halosulfuron (SedgeHammer®), Glufosinate-ammonium (Finale®)	Summer
Ground Ivy	<i>Glechoma hederacea</i>	Triclopyr, Glyphosate, Borax and slice seed, Hand pull	After it flowers or mid-Sept to mid-Oct.

PESTS AND DISEASE

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Winter Moth	<i>Operophtera brumata</i>	<i>Bacillus thuringiensis Kurstaki</i> (Dipel), Spinosad (Conserve® SC)	Spring
Boxwood Psyllid	<i>Psylla buxi</i>	Horticultural Oil, Potassium salts (Insecticidal soap, M-Pede®), Imidacloprid	200-440 GDD
Southern Red Mite	<i>Oligonychus ilicis</i>	Horticultural Oil, Potassium salts (Insecticidal soap, M-Pede®)	246-363, 618-802 GDD
Lace Bugs	<i>Stephanitis</i> spp.	Horticultural Oil, Potassium salts (Insecticidal soap, M-Pede®)	448-618, 802-1029 GDD

CURATION

Collections Development: Continue to evaluate current holdings for their suitability in this high-priority area, with removal to be considered for those that do not meet the standard (e.g., poor aesthetic performance of those included purely as ornamentals, lack of documentation of those included for their botanical value, etc.) Create desiderata for acquisitions that prioritizes documentation and source (for both wild and cultivated material). Eliminate some individuals in mass plantings to improve maintenance and performance of neighboring shrubs. Identify locations for future plantings along the perimeter as well as potential bed enlargement/consolidation within the garden proper.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- ✦ Prune shrubs to rejuvenate.
- ✦ Prune trees and shrubs for dead, diseased, broken and weak attachments.
- ✦ Structure prune young trees; secure assistance of arborist as necessary.
- ✦ Evaluate shrub's performance and placement in the garden.
- ✦ Oversee cleaning and sealing of blue stone steps. (Last done in 2006.)

Every 4 years, or as needed

- ✦ Refinish woodwork at the pavilion.
- ✦ Paint wooden fence along Centre Street.

Additional Projects

- ✦ Address erosion issue at the bank between the Dana Greenhouses and *Zelkova* Path.
- ✦ Assess Centre Street slope and plantings, possibly use a low-grow fescue.
- ✦ Install drip irrigation in all planting beds.
- ✦ In collaboration with the Manager of Visitor Education, the Horticulture Department will continue to select and grow taxa of high interpretive value.

CAPITAL PROJECTS

- ✦ Complete study of all bluestone steps:
 - Study drainage and leaching at main steps.
 - Redesign handrails at all of the steps.
- ✦ Study enhancement of wood perimeter fence/sound barrier along Centre Street for safety and aesthetics.
- ✦ Signage and interpretation.

NOTES

2.12 Explorers Garden

High Priority
High Intensity



(L) *Cedrus libani* ssp. *stenocoma*. May 2005. Richard Schulhof.
(R) *Pyrus pyrifolia*, Acc. 7272C. May 2007. Michael Dosmann.

AREA PROFILE

All three areas, Chinese Path, Azalea Path and the Center for Plant Conservation (CPC) bed, contain important [CPC and NAPCC (North American Plant Collections Consortium)] and historic (Asian and Southeastern United States) collections for the Arboretum and are among the most important landscapes at the Arnold Arboretum. Specimens of scientific and historic significance are too numerous to mention. All three areas will be maintained at the highest standard to represent the horticultural excellence of the Arboretum.

SPECIAL PRIORITIES

- ♦ **Chinese Path beds:** To reflect high standards. The turf should be green and all shrub beds should be free of weeds, edged and pruned so as not to obstruct foot paths.
- ♦ **Azalea Path:** Turf should be green and the shrub beds as seen from Azalea Path should have a clean edge and be free of weeds. Treat *Rubus* sp. with herbicide before it takes over. The *Rhododendron vaseyi* must be maintained as individual specimens.
- ♦ **CPC bed:** Bed requires frequent weeding and plantings of *Diervilla* must be maintained as individual specimens.
- ♦ **Stewartia collection:** A NAPCC collection.
- ♦ **Metasequoia grove:** Mulch foot path and add steps leading to and from Oak Path and prune lower limbs on trees to allow pedestrian access.

ARBORICULTURE

With a status of high priority being placed on this zone it is time to improve the condition of the trees to that level. In the past, most of the emphasis has been placed on maintaining the smaller trees and shrubs in the direct vicinity of Chinese Path. The boundaries of this zone now incorporate a grove of conifers with *Pinus strobus* and *Cedrus libani* to the east, a collection of *Quercus* now commonly known as the Oriental oaks to the south, a mature mass planting *Tsuga canadensis* and a row of several large North American oaks along Azalea Path to the west. Many of these larger, mature trees are subject to wind throw and soil compaction. These conditions quickly create die-back and storm breaks that require frequent visits to repair. It is recommended that this zone receive annual visits to maintain the health of the larger trees and to provide training and structural support to the younger trees and newer plantings. Aeration of the soil to the row of oak trees along Azalea path would help to improve their health.

ANNUAL CARE PLAN

All Seasons

- ✦ Remove or relocate woody debris to roadside for chipper.
- ✦ Remove weeds from all display beds and mulched areas around trees.
- ✦ Monitor newly planted accessions, investigate problems and take appropriate action.
- ✦ Chip brush.
- ✦ Maintain a clean edge on all shrub beds in the Chinese Path area and on the edge of the shrub beds as seen from Azalea Path.
- ✦ Report needs for additional tags to Plant Records office by filling out a Plant Care Request Form.

Spring

- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Top dress and seed lawn areas where needed.
- ✦ Clean cobblestone gutter.
- ✦ Remove leaf litter from shrub beds.
- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2".
- ✦ Create mulch rings and apply double-ground mulch at a depth of 2" to all trees.

Summer

- ✦ Edge and apply double-ground mulch to shrub beds so as to provide uniform coverage at depth of 2".
- ✦ Create mulch rings and apply double-ground mulch at a depth of 2" to all trees.
- ✦ Monitor soils for moisture. Preempt drought stress with irrigation, if necessary.

Fall

- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Top dress and seed lawn areas where needed.
- ✦ Clean cobblestone gutter.
- ✦ Remove leaf litter from shrub beds.

Winter

- ✦ Remove all spontaneous woody weeds from shrub beds and around base of trees.
- ✦ Remove all basal sprouts from trees; secure assistance of arborist as necessary.
- ✦ Monitor and spray shrubs for rodent damage.
- ✦ Prune woody plants away from walking paths and sidewalk.

NOXIOUS WEEDS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Weeds in cobblestone gutter		Pre and Post-emergent herbicides	Monthly, as needed during growing season
Wild Cucumber	<i>Echinocystis lobata</i>	Hand pull	Spring, Summer
Wild Blackberry	<i>Rubus</i> sp.	Stem inject w/Glyphosate, Triclopyr (Brush B Gon®)	Spring, Summer, Fall
Garlic Mustard	<i>Alliaria petiolata</i>	Glyphosate, Hand pull, String trim	Early Summer through late Fall
Wild Garlic	<i>Allium vineale</i>	Glufosinate-ammonium (Finale®)	Early Summer through late Fall

PESTS AND DISEASE

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Winter Moth	<i>Operophtera brumata</i>	<i>Bacillus thuringiensis Kurstaki</i> (Dipel), Spinosad (Conserve® SC)	Spring
Hemlock Woolly Adelgid	<i>Adelges tsugae</i>	Imidacloprid	Spring, Fall
Fire Blight	<i>Erwinia amylovora</i>	Prune and destroy infected plant parts	When dry

CURATION

Collections Development: Crowding of plants along the southwest 'loop' of Chinese Path presents a need for a review of these holdings, exploration of some thinning, and the development of new beds on the northeast 'loop' near and below the *Cedrus libani* ssp. *stenocoma*.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- ✦ Evaluate areas of erosion and address them.
- ✦ Prune shrubs to rejuvenate and to maintain open pathways.
- ✦ Prune trees and shrubs for dead, diseased, broken and weak attachments.
- ✦ Structure prune young trees; secure assistance of arborist as necessary.

Every 3 years, or as needed

- ✦ None.

Additional Projects

- ✦ Study shrub beds and tree plantings.
- ✦ In collaboration with the Manager of Visitor Education, support periodic interpretive programs.

CAPITAL PROJECTS

- ✦ Bring water from street up to hill.
- ✦ Install a drip irrigation system.

NOTES

2.6 *Fagus* Collection

Moderate Priority
Moderate Intensity



(L) American Beech. June 2006. Richard Schulhof.

(R) *Fagus sylvatica* 'Tortuosa', Acc. 2420A. May 2007. Michael Dosmann.



AREA PROFILE

NAPCC *Fagus* collection is among the nation's finest. Maintain our historic *Fagus* collection to the highest standards possible, including preempting drought stress through supplemental irrigation.

SPECIAL PRIORITIES

- Efforts should continue to combat soil moisture loss and compaction with mulching. Frequent monitoring for bleeding cankers must continue. Removal of large weed trees and invasives on slope.
- Repair Beech Path.
- Weeds growing in the mulch in the beech collection: They detract and compete with the trees and need to be eliminated. Burdock is the most offensive and should be injected with an herbicide.

ARBORICULTURE

The *Fagus* collections are currently undergoing a program to restore their health and vitality. After years of poor growing conditions these trees have succumbed to stress and attacks of wood-decaying fungal cankers. The following steps have been, and will continue to be, taken in order to revive the *Fagus* collection.

- Prune for sanitation. Removal of all dead and diseased wood, cutting back to strong healthy growth. It is best to remove the infected woody branches during the dormant period of the fungal pathogen, i.e., fall and winter.
- Aeration of the soil with the Air Knife to lessen the soil compaction.
- Apply the recommended amounts of lime to the soil to increase soil pH.
- Apply mulch under the drip edge of the trees to increase the amount of organic matter, lessen compaction, and decrease competition from weeds.
- Monitor the soil for moisture levels and irrigate when necessary.

ANNUAL CARE PLAN

All Seasons

- ✦ Monitor newly planted accessions, investigate problems and take appropriate action.
- ✦ Remove or relocate woody debris to roadside for chipper.
- ✦ Chip brush.
- ✦ Remove weeds from mulched areas around trees.
- ✦ Report needs for additional tags to Plant Records office by filling out a Plant Care Request Form.

Spring

- ✦ Aerate with air-knife when moisture is adequate. (Or Fall)
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Create mulch rings around young and specimen trees and apply double-ground mulch at a depth of 2”.

Summer

- ✦ Create mulch rings around young and specimen trees and apply double-ground mulch at a depth of 2”.
- ✦ Monitor soils for moisture with tensiometer. Preempt drought stress with irrigation, if necessary.

Fall

- ✦ Remove all spontaneous woody weeds.
- ✦ Aerate with air-knife when moisture is adequate. (Or Spring)
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)

Winter

- ✦ Remove all spontaneous woody weeds.

NOXIOUS WEEDS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Common Burdock	<i>Arctium minus</i>	Inject with Glyphosate; Mow	Spring, Summer
Garlic Mustard	<i>Alliaria petiolata</i>	Glyphosate, Hand pull, String trim	Early Summer through late Fall

PESTS AND DISEASE

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Winter Moth	<i>Operophtera brumata</i>	<i>Bacillus thuringiensis</i> Kurstaki (Dipel), Spinosad (Conserve® SC)	Spring
Hemlock Woolly Adelgid	<i>Adelges tsugae</i>	Imidacloprid	Spring, Fall
Beech Bark disease	<i>Nectria</i> spp.	Monitor for infection	

CURATION

Collections Development: As part of on-going review of *Fagus*, identify inter- and intra-specific gaps in the collection and identify sources and schedule acquisitions. Project potential removals that may occur in the next 1-5, 5-10, or 10+ year ranges.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- ✦ Prune trees for dead, diseased, broken and weak attachments.
- ✦ Structure prune young trees; secure assistance of arborist as necessary.

Every 3 years, or as needed

- ✦ None.

Additional Projects

- ✦ Vet plants that are out of sequence in this area.
- ✦ Address erosion issues.
- ✦ Develop successional plan for aging *Fagus sylvatica* cvs. as well as other *Fagus* species.

CAPITAL PROJECTS

- ✦ Install an irrigation system.

NOTES

5.5 Accessions, including Understory Road Edge Moderate Priority

Moderate Intensity



(Top) *Pseudotsuga menziesii* var. *glauca*, Acc. 1279-64B.
 (Middle) *Kalmia latifolia* 'Elf', Acc. 252-2003B. June 2006.
 (Bottom) *Tsuga diversifolia*, Acc. 17571A.

AREA PROFILE

An extension of the conifer collection, this area contains valuable *Tsuga*, *Pseudotsuga* and a border of *Kalmia* established by C.S. Sargent.

SPECIAL PRIORITIES

Care for health of Arnold Arboretum accessions.

ARBORICULTURE

Stretching from Rhododendron Dell to the Bussey Street Gate this zone encompasses a large collection of *Kalmia latifolia* and *Pseudotsuga menziesii*. Recently these plants have seen a decline in their health. Efforts have been made to reduce the spread of fungal leaf spots by removing dead and diseased branches as well as applications of fungicidal sprays. These treatments should continue for as long as the symptoms remain or improvements are seen in the plants overall health. Other accessioned plants found in this zone will receive periodic inspections and necessary repairs made to them.

ANNUAL CARE PLAN

All Seasons

- ✦ Monitor newly planted accessions, investigate problems and take appropriate action.
- ✦ Remove or relocate woody debris to roadside for chipper.
- ✦ Chip brush.
- ✦ Report needs for additional tags to Plant Records office by filling out a Plant Care Request Form.

Spring

- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)
- ✦ Create mulch rings and apply double-ground mulch at a depth of 2" to all young and specimen trees.

Summer

- ✦ Create mulch rings and apply double-ground mulch at a depth of 2" to all young and specimen trees.
- ✦ Monitor soils for moisture. Preempt drought stress with irrigation, if necessary.
- ✦ Clear vegetation within an 18" circumference around bases of trees.

Fall

- ✦ Remove all spontaneous woody exotics from around base of trees and in shrubs.
- ✦ Apply soil amendments, if needed. (Check with the Manager of Plant Health first.)

Winter

- ✦ Remove all spontaneous woody exotics from around base of trees and in shrubs.
- ✦ Remove all basal sprouts from trees; secure assistance of arborists as necessary.

NOXIOUS WEEDS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Oriental Bittersweet	<i>Celastrus orbiculatus</i>	Foliar spray or cut & spray w/ Triclopyr (Brush B Gon®), Lance with Glyphosate or Imazapyr	Spring, Summer, Fall
Japanese Knotweed	<i>Fallopia japonica</i>	Stem inject w/Glyphosate, Foliar spray w/ Glyphosate	Spring, Summer, Fall when in bloom
Wild Blackberry	<i>Rubus</i> sp.	Stem inject w/Glyphosate, Triclopyr (Brush B Gon®)	Spring, Summer, Fall
Garlic Mustard	<i>Alliaria petiolata</i>	Glyphosate, Hand pull, String trim	Early Summer through late Fall
Buckthorn	<i>Frangula</i> sp.	Pull, Lance with Glyphosate or Imazapyr if large	When temps are above 40° F

PESTS AND DISEASE

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Kalmia Leaf Spot	<i>Cercospora</i>	Pentathalon LF	Spring
Hemlock Woolly Adelgid	<i>Adelges tsugae</i>	Imidacloprid	Spring, Fall

CURATION

Collections Development: As needs dictate, review collections and the impact of Hemlock Hill management upon them.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- None.

Every 3 years, or as needed

- Prune trees and shrubs for dead, diseased, broken and weak attachments.
- Structure prune young trees; secure assistance of arborist as necessary.

Additional Projects

- Spray *Tsuga* with dormant oil once or twice a year and soil inject the *Tsuga* that can not be reached with spray with Imidacloprid every two-three years.

CAPITAL PROJECTS

- None.

NOTES

5.4 Hardwood, Mixed Hemlock/Deciduous

Low Priority
Low Intensity



Hemlock Hill. Oct 2004. Richard Schulhof.

AREA PROFILE

Mostly oak, maple and hickory, this area includes scattered hemlock. Because this is sub-prime habitat for hemlock (western-southern exposure) any chemical protection efforts will be very selectively applied and given lower priority than the program planned for optimal habitat areas on the northern and eastern slopes. The path along Hemlock Hill's southern slope is frequently used in spring and fall for a school program field study. Poison ivy here has been a problem.

SPECIAL PRIORITIES

- Control of invasives and promotion of native woodland. Keep path hazard free.
- *Buckleya distichophylla*: Our oldest accessioned plant, collected by Asa Gray.

ARBORICULTURE

Due to the decline of the hemlocks on Hemlock Hill two major repercussions have presented themselves: the increase of potentially hazardous conditions presented by the dead or dying hemlock trees, and the surge of invasive species. As noted in the special priorities of Zones 5.2 and 5.3 these issues are addressed through regular monitoring and removals. Considering their close proximity and matching concerns, these zones may all be treated as one with similar treatments and timing.

ANNUAL CARE PLAN

All Seasons

- ✦ Walk school program path and eliminate any poison ivy, woody debris or other nearby hazard.
- ✦ Weed woody exotics.

Spring

- ✦ None.

Summer

- ✦ None.

Fall

- ✦ None.

Winter

- ✦ None.

NOXIOUS WEEDS

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Buckthorn	<i>Frangula</i> sp.	Pull, Lance with Glyphosate or Imazapyr if large	When temps are above 40° F

PESTS AND DISEASE

<u>Common Name</u>	<u>Scientific Name</u>	<u>Treatment</u>	<u>Schedule</u>
Hemlock Woolly Adelgid	<i>Adelges tsugae</i>	Imidacloprid	Spring, Fall

CURATION

Collections Development: None.

Field Checks: Systematic field checks are conducted in specific map locations on a four year cycle. See Appendix D for a full schedule.

LONG-TERM PROJECTS/TASKS

Every 2 years, or as needed

- ✦ None.

Every 3 years, or as needed

- ✦ None.

Additional Projects

- ✦ Several hundred liners—oak, maple, beech, hickory—were planted on the southern slope in spring 2006. Revegetation efforts in areas of hemlock decline may require additional plantings.

CAPITAL PROJECTS

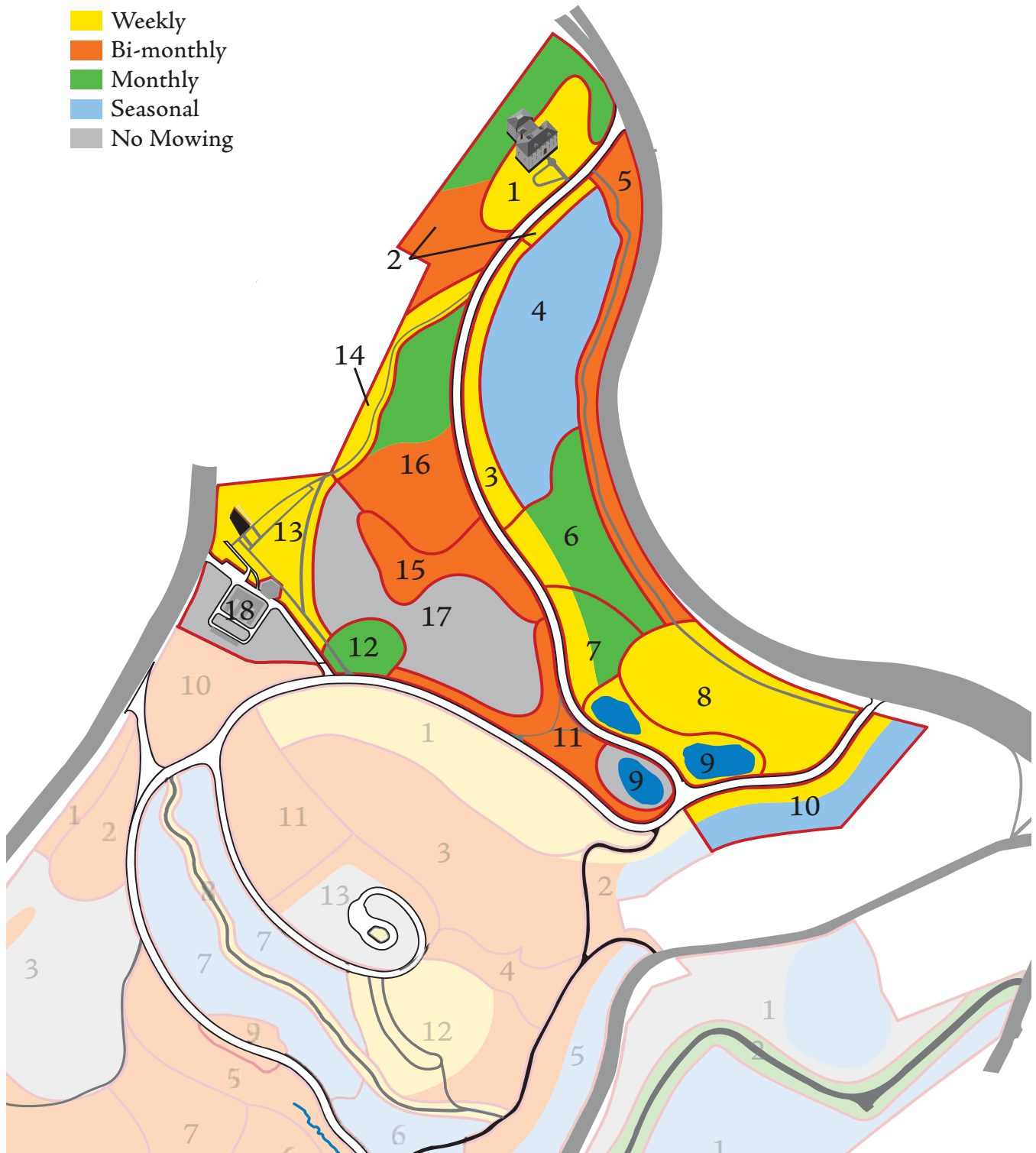
- ✦ None.

NOTES

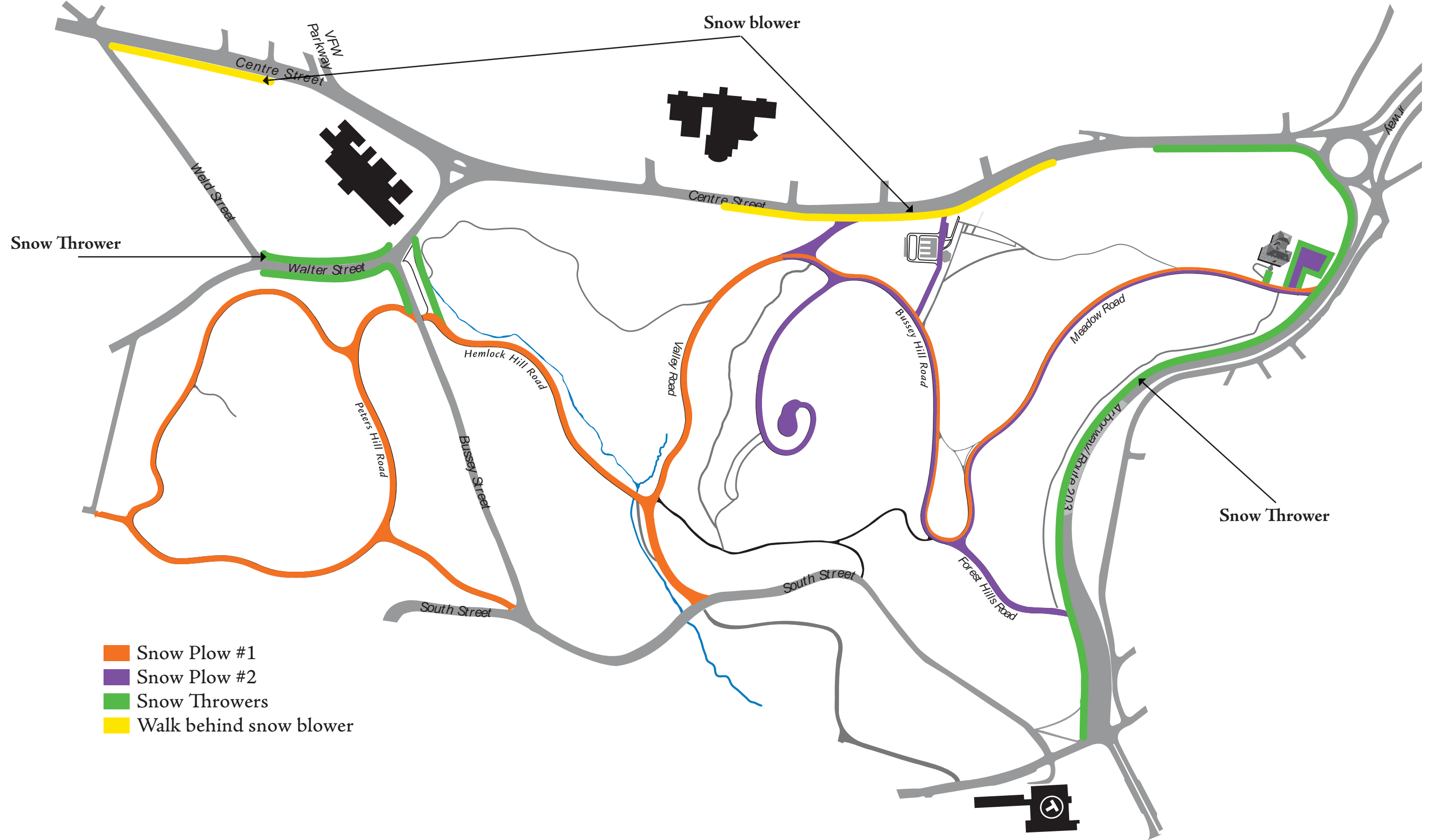
Appendix A Mowing Operations

REGION I - MOST HIGHLY VISITED AREA

- Weekly
- Bi-monthly
- Monthly
- Seasonal
- No Mowing



SNOW REMOVAL ROUTES



Appendix D Curation and Plant Records Office

DOCUMENTATION

Records and Mapping

Records for each accession in the collection are maintained in a PC-based database application (BG-BASE™). Mapping software, Autodesk Map™ 2004, linked to BG-BASE™ by a utility program, ensures accurate map maintenance and plotting of landscape features. New plantings and hardscape features are geo-referenced using submeter Global Positioning System (GPS) receivers. A grid system overlaid onto the base map divides the property into 65 individual maps, each 400 feet by 600 feet, and each map is further divided into 4 quadrants labeled as NW, NE, SW, SE. Map updates are conducted at least monthly and capture spring and fall plantings, as well as removals.

Map books are produced annually in an 11" x 17" format during the winter months. These are distributed to various staff members before the growing season for use in the collection. Visiting professionals are also provided with maps and information from BG-BASE™ that pertains to their area(s) of interest.

Field Checks

Systematic field checks are conducted in specific map locations on a four-year cycle. See below for a projected timeline:

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Region 1	X				X				X	
Region 2				X				X		
Region 3			X				X			
Region 4		X				X				X
Region 5	X				X				X	
Region 6				X				X		

Field check activities include include, but are not limited to: subjective health evaluation, DBH and height measurements, label need assessment/adjustment, and map feature (hardscape and softscape) verification.

Voucher Collection

Vouchering of the collection is ongoing, and accessions of known wild provenance are a primary focus. The goal is to add at least 700 voucher specimens to the Cultivated Herbarium of the Arnold Arboretum annually and to document each accession in flower, fruit, and vegetative states. During the growing season, two days a week are devoted to the collection of herbarium vouchers by plant records staff and volunteers.

Plant Care Request Forms

Plant Care Request forms are to be filled out and submitted to the Curator, or Manager of Plant Health, for all plants in decline prior to any action (e.g., removal) being taken. The Curator or Manager of Plant Health will review and field-check the plant(s) and the Curator will determine a course of action and then return the form or forward it to appropriate personnel. Likewise, forward all verification requests to the Curator. Requests to label or remap should be forwarded to the Manager of Plant Records. Upon completion of activity, return completed forms to the Manager of Plant Records.

Arnold Arboretum Plant Care Request Form

Requested by: _____ Date: _____
 Botanical name: _____
 Accession #: _____ Map location: _____
 Problem and maintenance proposed: _____

 Standing dead: Yes No
 Action(s) proposed: Remap Label Verify Remove Reprop.
 Relocate from _____ to _____
 Maintenance completed by: _____ Date: _____
 Stump Treatment (circle one): Pulled Ground To be ground
 Treated w/ herbicide (describe): _____

Front

Curatorial Review:

Field check by: _____ Date: _____
 Herbarium checked by: _____ Date: _____
 Action(s) to be taken: Remap Label Collect voucher Remove
 Reprop. Relocate from _____ to _____
 Signature for removal: _____
 Mapping/labeling by: _____ Date: _____
 Voucher collected by: _____ Date: _____
 Propagation completed by: _____ Date: _____
 BG-BASE entry completed by: _____ Date: _____

Back

LABELING

Assessing Label Needs

Labels are produced (embossed) on an as-needed basis. Report label needs to the Manager of Plant Records by filling out a Plant Care Request Form.

Label need assessments are conducted in advance of research use, special events (galas, fundraisers, etc.), and annual happenings (Lilac Sunday and Plant Sale).

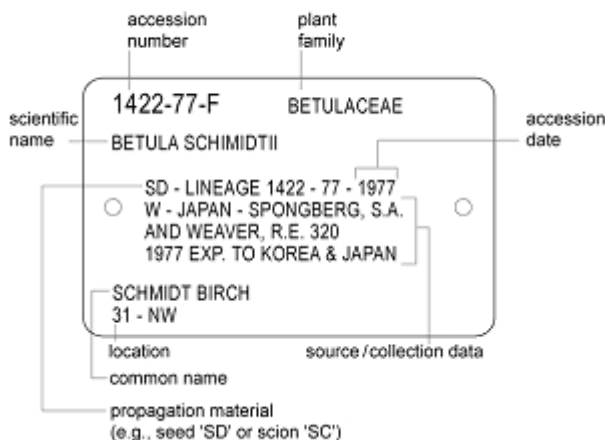
	<u>Area of Assessment</u>
Lilac Sunday	Region 1 (along roadways & paths); Region 2.1, 2.2 (partial) & 2.3 (partial)
Plant Sale	Leventritt Garden (Region 1.13), Dana Greenhouse Plantings, & Tour Highlights

Plants highlighted on self-guided tours or by any number of interpretable means, such as signage, are assessed once a month and are labeled as needed.

Labels

Annodized Aluminum

How to read a plant label



- Plants in the collection are labeled with two brown records labels (\$0.98 ea).
- Gold records labels replace brown labels on specimens highlighted in self-guided tours.
- Trees without low-hanging branches are labeled by inserting a 3" stainless steel screw (square head) at an appropriate height above soil line. Record labels are twisted around the screw using copper coated wire (22 gauge (0.64 mm or 0.025 inches (thickness))). In rare cases, record labels may hang from trunk label mounts (nails/screws) however every precaution should be taken to avoid owl eyeing.
- Juvenile shrubs, as well as trees absent of substantial secondary branching, may be labeled using a metal stake. Plastic coated copper wire is twisted around the records label and stake; deep stake insertion ensures relative permanency.

Appendix E-1 Noxious Weeds

(Listed alphabetically by scientific name)

Alliaria petiolata

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family Name</u>	<u>Life cycle</u>
Garlic Mustard	<i>Alliaria petiolata</i>	Brassicaceae (Mustard)	Biennial

BRIEF DESCRIPTION

Garlic mustard is a cold-season biennial, introduced from Europe as a cooking herb, and is now a threat to the forest understory, competing and beating out the regeneration of our native wildflowers and trees. It produces anywhere from 350 to 7,900 seeds on a single plant. A combination of aggressive measures is needed to control this pest and to reduce its seed bank. It has been suggested that five years is the length of time it will take to do so.

RECOMMENDATIONS FOR CONTROL

Manual

- Garlic mustard can be hand pulled in smaller areas, where feasible. In larger areas the flowering stalks produced on the second year's growth can be removed with a string trimmer, or lawn mower, in early spring, prior to flowering to prevent seed production. However, it has been shown that the same plants can produce another flowering stalk, so it is important to monitor the plants to insure that they are not allowed to flower again.

Chemical

- Because garlic mustard is a cold-season plant with a long growing season, foliar applications of a mixture of 2%-3% glyphosate can be applied to its rosettes early in the spring, after the leaves have fully developed, or later in the fall.

REFERENCES

<http://www.ipm.msu.edu/garlicmustard.htm>

<http://tncweeds.ucdavis.edu/esadocs/allipeti.html>

Allium vineale

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family Name</u>	<u>Life Cycle</u>
Wild garlic	<i>Allium vineale</i>	Liliaceae (Lily)	Perennial

BRIEF DESCRIPTION

This perennial weed emerges in early spring, allowing for easier control with a broad spectrum post-emergent herbicide, while other plants may not have emerged yet. It is particularly aggressive because it not only spreads by its underground bulbs but by aerial bulblets and by seed.

Appendix E-2 Insects

(Listed alphabetically by common name)

Birch Leafminer

<u>Common Name</u>	<u>Scientific Name</u>	<u>Hosts</u>
Birch Leafminer	<i>Fenusa pusilla</i>	Prefers native white-barked birches.

BRIEF DESCRIPTION

The birch leafminer came to the United States from Europe. The adult wasps surface in spring, mate and deposit their eggs in the emerging birch leaves. Black spots can be seen where the leaves have been punctured and the eggs deposited. As the larvae develop they tunnel through the leaf, leaving trails of brown foliage and creating blotches. Defoliation may occur; death may not but maintaining the vigor of the birch tree is important and one way of doing so is by controlling the birch leafminer. If vigor is not maintained, then the tree may not have the reserves to ward off a secondary pest, the bronze birch borer.

RECOMMENDATIONS FOR CONTROL

Manual/Cultural

- None recommended.

Chemical

- Soil inject with imidacloprid every two to three years. See label for rate.

REFERENCES

Cranshaw, Whitney. 2004. Garden Insects of North America. Princeton University Press.

Bronze Birch Borer

<u>Common Name</u>	<u>Scientific Name</u>	<u>Hosts</u>
Bronze Birch Borer	<i>Agrilus anxius</i>	Prefers white and European birches

BRIEF DESCRIPTION

The bronze birch borer is a native North American beetle, less than one-half inch in size whose larvae feed just under the bark on white barked birches. The trees eventually succumb to the girdling feeding pattern. Upper branches are attacked first. Signs of the beetle are D-shaped exit holes on the tree and a rust colored staining.

RECOMMENDATIONS FOR CONTROL

Manual/Cultural

- Borers will attack and invade plants that are under stress, so supplying adequate moisture, reducing compaction and controlling birch leafminer will help keep the tree healthy so that it can overcome any borers.

Appendix E-3 Diseases

(Listed alphabetically by common name)

Briosia Bud Blast & Twig Blight

<u>Common Name</u>	<u>Scientific Name</u>	<u>Hosts</u>
Briosia Bud Blast & Twig Blight	<i>Briosia azaleae</i>	<i>Rhododendron</i>

BRIEF DESCRIPTION

This fungal disease first attacks the flower buds and causes them to turn brown and not open. In the spring, tiny black fruiting structures can be seen covering the bud. If kept unchecked this disease will travel to the lateral foliage buds and then into the twigs.

RECOMMENDATIONS FOR CONTROL

Manual/Cultural

- The dead flower buds and twigs should be pruned out of the plant and destroyed. This task should be completed only when the weather is dry, so as to not spread the disease.

Chemical

- If necessary, apply a fungicide in early summer when the flower buds are forming.

REFERENCES

UMass Extension Landscape, Nursery and Urban Forestry Program. Professional Management Guide for Insects, Diseases, and Weeds of Trees and Shrubs in New England 2003-2004.

Diplodia Blight

<u>Common Name</u>	<u>Scientific Name</u>	<u>Hosts</u>
Diplodia Blight	<i>Sphaeropsis</i>	<i>Pinus nigra</i> , <i>P. mugo</i> , <i>P. sylvestris</i> , <i>P. strobus</i> , <i>P. resinosa</i> , <i>P. cembra</i>

BRIEF DESCRIPTION

This is a fungus that causes dieback on new shoots, affects cones and is characterized by the black spots on new needles. It mostly attacks pines that are stressed from poor growing conditions.

RECOMMENDATIONS FOR CONTROL

Manual

- Maintain vigor of the trees. Pruning infected branches will not reduce the spread of inoculum but it will improve the appearance of the tree. Removing infected cones will reduce the spread of inoculum.

Appendix F Arborists' Calendar

High Priority
 Medium Priority
 Low Priority
 Other

MAY 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Zone 3.7 Beech Grove	2	3
4	5 Zone 3.7 Beech Grove	6	7	8	9	10
11 Lilac Sunday	12 Zone 2.12 Explorers Garden	13	14	15	16	17
18	19 Zone 2.12 Explorers Garden	20	21	22	23	24
25	26 Memorial Day	27 Zone 2.12 Explorers Garden	28	29	30	31

JUNE 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Zone 2.13 Bussey Hill Summit	3	4	5	6	7
8	9 Pruning with Interns and Aggie Students	10	11	12	13	14
15	16 Zone 2.13 Bussey Hill Summit	17	18	19	20	21
22	23 Zone 2.13 Bussey Hill Summit	24	25	26	27	28
29	30 Zone 1.11					

Appendix G Horticulture Team Assignments

		<u>Staff</u>	<u>Priority</u>
Region 1 - Most Highly Visited Area			
1.1	Hunnewell Visitor Center Area	WK	High
1.2	Landscape Surrounding the Visitor Center	BM	Moderate
1.3	Azalea Border along Meadow Road	WK	High
1.4	The Meadow	BM	Low
1.5	Willow Path & the Arborway Wall Edge	KG	High
1.6	The <i>Acer</i> Collection	KG	Moderate
1.7	North Woods with Accessions	KG	Moderate
1.8	Bradley Rosaceous Collection	KG	High
1.9	The Three Ponds: Rehder, Dawson, Faxon	KG	High
1.10	Mass State Lab Slope & Forest Hills Gate Area	KG	Low
1.11	Legumes, including Shrubs	WK	Moderate
1.12	<i>Zelkova</i> and Area Below the Esker	BE	Moderate
1.13	Leventritt Shrub and Vine Garden	JK	High
1.14	Linden Path, including Beds	JK	High
1.15	<i>Leitneria</i> Bowl to Bamboo	JK	Moderate
1.16	<i>Aesculus</i> , <i>Tilia</i> , <i>Phellodendron</i> and <i>Cornus</i>	BE	Moderate
1.17	North Woods	App	Low
1.18	Dana Greenhouse, Nurseries and Bonsai	DGH	High
Region 2 - Bussey Hill			
2.1	<i>Syringa</i> Collection	WK	Low
2.2	<i>Forsythia</i> Bank and Accessioned Shrubs	WK	Moderate
2.3	Legume Beds & <i>Catalpa</i> , <i>Ulmus</i> , <i>Morus</i> , <i>Fraxinus</i>	SG	Moderate
2.4	Historic Bussey Mansion Area	BM	Moderate