Appendix D
Recommended Plant Species

The following pages contain a listing of plant species recommended for new and replacement plants throughout the Hillside. This list is based on native plants that would naturally occur in the type of ecosystem present on the Hillside and is compatible historic plans per the Emerald Necklace Plant List as prepared by the Boston Parks and Recreation Department.

TREES

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Acer rubrum	Red Maple	60'/50'	One of the first trees to color in the fall, which can be inconsistent, it will always have attactive red samaras in the early spring.	Will exhibit chlorosis in high pH soils, naturally occurs in wet areas.			Yes
Acer saccharum	Sugar Maple	75'/50'	Outstanding fall color red to orange in New England.	Slow growing, will tolerate some shade, does not like cramped sites, excessive drought can lead to maple decline.	Canopy		
Acer spicatum	Mountain Maple	15'/15'	This is a shrub or small trunked tree with bark that will eventually become furrowed or warty. It will have yellow, orange, to red fall color.	This tree prefers cool, shady, locations where it is found in the wild.	Understory		Yes
Amelanchier canadensis	Shadblow Serviceberry	15'/10' Suckers	Indigenous flowering tree with white flowers in early spring.	Excellent tree for woodland edge, tolerant of soil pH and moisture, rarely requires pruning.	Understory		Yes
Cercis canadensis	Redbud	30'/35'	Small tree with edible, early purple spring blooms. Effective in groupings or as a specimen.	Will not tolerate permanently wet soil-can benefit from pruning to allow light into canopy.	Understory	Yes	Yes
Cornus alternifolia	Alternate-leaved Dogwood	20'/30'	Spreading small tree or shrub with a strong horizontal branching pattern, insignificant blooms in May to early June, blooms last for 7-10 days, fragrance can be overpowering, fruit is an attractive black drupe at maturity.	Requires moist, acid, well drained soil.	Understory		Yes
Cornus florida	Flowering Dogwood	30'/30'	Low branched tree with spreading horizontal lines, blooms in spring, flowers are green the four bracts which surround the flowers are what is showy, consistent fall color-the red seeds accompany the red to purple leaves.	Some consider this plant difficult to transplant-requires an acid well drained soil with adequate moisture. If established in full sun flowers will be outstanding. No tree is more beautiful in a woodland setting. Susceptible to borers and anthracnose, which seem to attack stressed trees.	Understory		Yes
Crataegus crusgalli	Cockspur Hawthorn	25'/25'	Species has thorns-the variety 'inermis' is thornless. Blooms in spring with a disagreeable odor. Fruit is a pome-like drupe, which is deep red persisting into late fall.	Susceptible to a variety of diseases, but the plant is very durable, sturdy and resistant and resilient. Very tolerant of site and soil conditions.	Understory	Yes	Yes
Fraxinus americana	White Ash	80'/80'	Bark of older trees is furrowed into close diamond shapes seperated by narrow interlancing ridges. Fall color is variable-usually yellow	Easily transplanted and adaptable to site conditions.	Canopy	Yes	Yes
Halesia carolina	Carolina Silverbell	35'/30'	This tree drips with white bell shaped flowers in spring. Blooms occur on one year old growth.	Easily transplanted, prefering acid soil; but can become chlorotic in soils with pH levels above 6. Soil with high organic matter is a plus. It will grow in sun or part shade. It may be difficult to obtain suitable stock but worth the effort.	Understory		Yes

TREES (cont.)

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Hamamelis virginiana	Common Witch Hazel	25'/25'	Yellow fragrant flowers often occur during peak fall foliage color which lessens the impact of the flowers. This small tree to large shrub can have wonderful yellow fall color.	This is an excellent large shrub for use in a naturalized area. The plant will grow in sun or shade, dislikes extremely dry situations.	Understory		Yes
Liriodendron tulipifera	Tulip Tree	80'/40'	Fast growing, somewhat weak wooded tree with greenish yellow tulip like blooms in early summer. These blooms often occur in the top third of the tree and can be long in coming. This tree has one of the straightest boles of any species, with interesting bark. Because of it's weak wood site clear of pedestrian paths.	The tree has fleshy roots which can make it difficult to transplant, spring planting is recommended. The tree turns a beautiful butter yellow in the fall.	Canopy		Yes
Quercus alba	White Oak	70'/70'	One of the most handsome of the oaks, Fall color can be brown to rich red. Slow growing and may be difficult to source.	Transplanting can be a problem, spring planting recommended.	Canopy	Yes	Yes
Quercus coccinea	Scarlet Oak	70'/50'	The quintisential Oak with a rounded open canopy at maturity. The glossy green summer leaves turn scarlet in the fall.	This oak is considered less tolerant of adverse conditions than Pin Oak.	Canopy	Yes	Yes
Quercus palustris	Pin Oak	65'/40'	Pyramidal tree with a strong central leader, lower branches tend to droop to the ground. Glossy green leaves turn russet to bronze or red in the fall.	Leaves have a tendency to hang on during the winter, spring growth pushes the last lingering leaves off in the spring. This habit may be considered a maintenance nuisance. The species is quite tolerant and the easiest Oak to transplant.	Canopy	Yes	Yes
Quercus rubra	Red Oak	75'/50'	Rounded symmetrical tree. Fall color is russet red to bright red. A favorite of Olmsted.	Plant in spring, considered a fast growing Oak if maintained. The tree has negligible tap root.	Canopy	Yes	Yes
Rhus glabra	Smooth Sumac	15'/20'	The natural growth habit of this plant is to sucker in all directions producing interesting plant colonies. This frequently happens on waste or areas of new construction. Fall color can be orange-red to purple and quite effective. The showy fall fruit is a scarlet cluster of drupes that remind one of a bunch of grapes held upright.	Will grow in dry poor soil areas. Initial plantings will look a bit sparse due to the juvenile character of the plant.	Understory	Yes	Yes

SHRUBS

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Aronia arbutifolia	Red Chokeberry	8'/4'	Upright growth poducing a bright red pome that persists into winter. Plant exhibits some fall color.	Will grow anywhere; best used in massed plantings	Understory		Yes
Calycanthus floridus	Carolina Allspice	8'/8'	Fragrant blooms on old and new wood. Dense shrub with glossy foliage.	No special requirements, grows well in almost any soil. If planted in full sun, the plant will usually stay more compact.	Understory	Yes	Yes
Comptonia peregrina	Sweetfern	3'/6'	The graceful interesting fern like quality of the foliage makes this a perfect plant at the woodland edge. The plant is a nitrogen fixer and adaptable to poor infertile soils in full sun to part shade. This plant is considered a pioneer species, it frequently just shows up in the landscape where roads or buildings have been introduced.	This plant is considered difficult to establish thus install container grown plants. It prefers acidic soil.			Yes
Cornus racemosa	Grey Dogwood	12'/15'	Suckering plant forming large colonies. The fruit is white but inconsistent-the most attractive quality is the persistent pink to red coloration of the fruit pedicels, which last a bit longer.	Very adaptable native to lower areas. This plant can be used in a barrier planting.	Understory		Yes
Ilex verticillata	Winterberry	10'/10'	This plant is naturally found in swampy areas, it produces sucker growth with red berry like drupes in the winter-most effective in the landscape.	Requires a male and female for fruit set-will grow in a variety of situations, prefers a soil pH between 4.5-5.5.			Yes
Symphoricarpos albus	Common Snowberry	6'/6'	Easily transplanted shrub with bluish green summer color. The fruit is a white berry like drupe.	Native on limestone and clay soils but tolerant of soil conditions. Prune in early spring so current season's growth can produce flowers.	Understory	yes	Yes
Viburnum cassinoides	Witherod	8'/8'	A good dense shrub with good fall color. The most outstanding feature is the fruits. White flowers in June/July become fruit which gradually changes from green to pink, then red to blue before becoming black in September. It can be remarkable.	This is a great plant that performs in sun or part shade and deserves more extensive use in the landscape.	Understory	Yes	Yes
Viburnum lentago	Nannyberry	15'/10'	A small tree with a somewhat open habit. The leaves may turn purplish red in the fall. May flowers are a creamy white followed by bluish black drupes in September/October. The transition coloration of the fruit is similar to Vibunum cassinoides. It also suckers and can form a thicket.	Tolerant plant that birds love. Native species that will live in sun or shade in dry or moist soils	Understory	Yes	Yes
Viburnum prunifolium	Blackhaw	12'/12'	Round multistem shrub or small tree with stiff branches. Plant is often characterized as being rigid. White flowers in May are followed by edible bluish black fruit in September.	Will grow anywhere sun to shade dry to moist soils.	Understory	Yes	Yes

VINES

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Clematis virginiana	Virginsbower	12-20' ht.	The bright green summer foliage is covered with showy white flowers in July through September.	Good vine for natural situations.			
Parthenoscissus quinquefolia	Virginia Creeper	30-50' ht.	Fast growing, deciduous vine with tendrils that end in adhesive tips that allow this vine to attach itself to anything. This is one of the first plants to turn its rich red color in fall.	This plant is very tolerant of soils and exposure. Difficult to kill.		Yes	

HERBACEOUS PERENNIALS

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Anemone canadensis	Meadow Anemone	1'/18"	This anemone is the American version of Anemone sylvestris. The white flowers face upward instead of nodding downward. This species is extremely variable.	This is a rampant grower and will quickly colonize open woodlands. It prefers good drainage and part shade.	Forest Floor		Yes
Aster divaricatus	White Wood Aster	2'/18"	This aster with its black twiggy stems grows in sun to shady areas, producing white flowers in late summer to early fall.	Tolerant of dry shade.	Forest Floor	Yes	Yes
Aster novae-angliae	New England Aster	3'/4'	The New England Aster forms robust clumps of woody stems that are covered with grey green foliage. The lower leaves drop early before they bloom in the fall. They come in various pinks and purples	This plant is tolerant of wet soils and appreciates full sun for best floral display.	Edge of Woodland	Yes	Yes
Cimicifuga racemosa	Black Snakeroot	1'/18"	This low growing plant with primarily basal foliage has yellow ray flowers for a long period in summer.	This plant does extremely well in full sun and poor soil. Fertilization tends to cause the plant to sprawl.		Yes	Yes
Coreopsis lanceolata	Lance Coreopsis	1'/18"	This low growing plant with primarily basal foliage has yellow ray flowers for a long period in summer.	This plant does extremely well in full sun and poor soil. Fertilization tends to cause the plant to sprawl.		Yes	Yes
Dicentra candensis	Squirrel Corn	10"/18"	The species is ephemeral-one of the first plants to emerge in the spring.	Prefers acidic soil. Plant in combination with other material.	Forest Floor		Yes
Dodecatheon meadia	Shooting Star	20"/10"	Perennial that flowers on a stalk emerging from a basal rosette of leaves. The flowers are nodding darts held dramatically above the foliage.	Prefers rich woodland soil.	Forest Floor	Yes	Yes
Epimedium species	Barrenwort	18"/18"	Long lived perennial that has elegant somewhat evergreen foilage on wiry stems. There are hundreds of varieties and all have their charms.	Plants will do best in moist, richly organic soils, but will tolerate dry shade and competition from tree roots.	Forest Floor	Yes	Yes
Erigeron speciosus	Oregon Fleabane	1'/2'	The light purple daisy like flowers of this species cover the plant. This plant self seeds and is often a parent of hybrids that have been introduced into the floral market for borders.	Prefers full sun, but will tolerate some shade, likes good drainage and soils that are not too rich	Forest Floor	Yes	Yes
Gaultheria procumbens	Wintergreen	6"/Spreading	Considered a low evergreen shrub that expands with a creeping rhizome. The flowers are which followed by bright red berries.	Will grow in dry or moist woods.	Forest Floor	Yes	Yes
Geranium maculatum	Wild Geranium	18"/2'	This hardy native geranium forms a spawling low mat of durable foliage which is the backdrop for the pink flowers that sit above.	This pest free plant thrives in full sun but tolerates some shade. The seedheads burst at maturity, naturally dispersing the plant into the landscape.	Forest Floor		Yes

HERBACEOUS PERENNIALS (cont.)

Scientific Name	Common Name	Ultimate Size Ht./Sp.	Outstanding Landscape Feature	Special Cultural Requirements	Canopy Understory Forest Floor	Dry Woodland	Slope Stabilization
Hepatica americana	Liverleaf	6"/8"	Round lobed leaves distinguish this species from the more commonly available Hepatica acutiloba. The plants will interbreed.	Americana usually occurs in dry woods with an acid to neutral substrate-while acutiloba prefers moist woods in limestone areas.	Light Shade Forest Floor	Yes	Yes
Heuchera americana	Alumroot	3'/12"	The bloom stalk arises from basal foliage-producing the height.	Naturally found in dry woods-especially in limestone areas.	Light Shade Forest Floor	Yes	Yes
Michella repens	Partridge Berry	12"/18"	Evergreen perennial which will root at stem nodes. The red berry fruit is the result of the fusion of two flower ovaries. The leaves are roundish with greenish white veins. The plant will form a natural mat if grown in an ideal habitat.	This plant is naturally found in dry and moist woods.	Light Shade Forest Floor	Yes	Yes
Sanguinaria canadensis	Bloodroot	10"/10"	Ephemeral perennial that is worth the effort. The flowers occur on leafless stalks and are white. Early the leaf encases the stem that supports the flower. The bloom rises above the leaf at maturity. Flowers may only last a few days. It's name comes from the red juice that exudes from the cut rhizomes.	Rugged plant that is naturally found in moist woodlands, but considered quite adaptable.	Forest Floor		Yes
Trillium grandiflorum	White Trillium	1'/18"	This is a showy native wildflower. The white flowers nod and fade to pink with age. Leaves, sepals, and petals all come in threes.	Best effect naturalized in an open woodland. Although this plant does best on near-neutral soils it is adaptable.	Forest Floor		Yes
Viola canadensis	Canada Violet	1'/18"	Neat clump forming plant that arises from thick rhizomes. The flowers are born in the leaf axils and are usually white flushed with purplish brown on the outside with a yellow throat inside.	This plant may become widespread if happy. They thrive in partial shade with well drained soil.	Forest Floor		Yes
Dennstedtia punctilpbula	Hay-scented Fern	2'/2'	Green to yellow green lanceolate fronds that smell like new mown hay hence its common name. Some consider this fern aggressive.	Prefers slightly acid, moist upland soil, where it will form a pleasant groundcover.	Forest Floor	Yes	Yes
Polystichum acrostichoides	Christmas Fern	2'/2'	This fern is a robust evergreen fern that can be grown in diverse habitats.	Cosidered easy to grow, it prefers a moist woodland but can be found in dryer areas as well. The degree of its evergreeness is debatable in New England, but it is usually identifiable if not covered by snow.	Forest Floor	Yes	Yes

Appendix E

Arborway Hillside Invasive and Noxious Plant Species Description and Control Measures

Amur Corktree (*Phellodendron amurense*)

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Amur Corktree (*Phellodendron amurense*)

Description:

- Medium-sized deciduous tree (25 to 50 feet tall) with a short trunk and widely spreading crown.
- Thick, cork-like bark.
- Opposite, compound leaves (10-15 inches long) typically consisting of anywhere from 5 to 13 leaflets (2.5-4.5 inches long). Smell of turpentine when crushed. Leaves are somewhat similar to *Ailanthus altissima* (tree of Heaven) and these two species are sometimes confused with one another**.**
- Small, green flowers developing in late Spring.
- Female trees bear abundant , fleshy green berries (drupes 1/4 to ½ inch in diameter) in June-July turning to black and remaining on the tree until late fall.

These trees have been planted in the Arnold Arboretum (it was widely planted as an ornamental and street tree throughout the northeastern and midwestern U.S.). The Arboretum trees are possibly the source for these trees on the Arborway Hillside. Amur corktree can quickly invade and dominate forest areas and is adaptable to various growing conditions and soil types. It is drought resistant as well. The dense shade inhibits the growth of native tree seedlings.

Massachusetts considers Amur corktree an invasive species and was placed on the Massachusetts Prohibited Plant List. It was prohibited for sale or importation on January 1, 2006.

Control Measures:

Control measures should be concentrated on eliminating the seed-bearing female trees. In order to effectively discourage the growth and dispersion, a combination of manual cutting and removal combined with a comprehensive chemical treatment of the stumps and shoots is the most effective means of maintaining this invasive species. A direct application of glyphosate or triclopyr solution applied to the foliage or stumps cut near the ground is recommended. Seedlings can be hand pulled.

Black Locust (*Robinia pseudoacacia*)

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Jan Samanek, State Phytosanitary Administration, www.forestryimages.org

Black Locust (*Robinia pseudoacacia*)

Description:

- Medium to large deciduous tree capable of growing up to 80 feet tall.
- Light brown, rough bark, becoming furrowed with age.
- Leaves are alternate, compound with 7-21 small, round leaflets per leaf. Leaflets are 1.5 in. (4 cm) long. A pair of long, stipular spines is found at the base of most leaves.
- Showy, fragrant, white to yellow flowers (8 inch lone clusters) occur in the spring.
- Smooth, thin seed pod (2 to 4 inch in length).

Once introduced into an area, black locust expands rapidly, creating dense stands of clones which shade native ground vegetation. The large, fragrant blossoms of black locust compete with native plants for pollination by bees and other insects. Although abundant seeds are produced, few actually germinate. Black locust is intolerant of shade and is not found in dense woods except as a dominant tree. Although black locust is native to parts of North America, it is not native to New England.

Control Measures:

Biological control agents are not available to check the invasion of black locust. Manual cutting or removal of the trees alone is also not an effective maintenance option due to the plant's strong re-sprouting ability. Seedlings may be hand-pulled if the entire root system is removed. In order to effectively discourage the growth and dispersion of black locust, a combination of manual cutting and removal combined with a comprehensive chemical treatment of the stumps and shoots is the most effective control measure. A direct application of glyphosate or triclopyr solution applied to fully expanded leaves or stumps cut near the ground is typically recommended. Triclopyr is typically more effective.

Black Swallow-Wort (*Cynanchum louiseae*)

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Black Swallow-Wort (*Cynanchum louiseae*)

Description:

- A perennial twining vine
- Dark green, shiny, oval-shaped foliage with pointed tips, 3 to 4 inches and 2 to 3 inches wide.
- Small black to dark purple, five-petaled star-shaped flowers (0.25 inch diameter) appear in June and July
- 2 to 3 inch long slender, tapered seed pods that turn from green to light brown as it matures. Ripe seeds are dispersed on silky filaments, similar to milkweed.

The plant is also spread by rhizomes that sprout new plants. The plant frequently will twine upon itself to form a large clump and will spread into any extensive patch. It is found in all types of habitat but particularly shows up in old field, fencerows, and woodland edges. It can quickly cover large areas and crowd out native vegetation.

Control Measures:

Black swallow-wort is one of the most difficult invasive plants to control due to it aggressive nature and fast growth rate. There are no known biological control agents available to check the invasion of black swallow-wort. Manual removal of the plant must the thorough and includes the removal of the complete root crown from the soil. All seed pods must be removed should either be burned or bagged and sent to a landfill. Unfortunately seeds can last as long as five years in the soil before sprouting, therefore a patch that is thought to have been removed may reappear years later. Mowing has not been deemed effective. Chemical methods are the best way to deal with large patches of black swallow-wort but can take sometimes several years to completely control. Timing of chemical application is critical and should not be done when the plant first emerges in early spring. Rather wait until the plants are actively growing and once flowers form. A direct application of glyphosate or triclopyr solution applied to the foliage; however this may only kill back leaves on the upper layers of the patch. To improve upon this method, mow or hand trim the plant (be sure to properly dispose of seed pods) as low as possible and be diligent and spray immediately once new growth emerges. This may have to be done repeated times throughout the growing season. Application of the chemical with a sponge is a way to prevent accidentally overspray onto nearby non-target plants.

European and Glossy Buckthorn (*Rhamnus cathartica, Rhamnus frangula*)

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Jan Samanek, State Phytosanitary Administration, www.forestryimages.org

European and Glossy Buckthorn (*Rhamnus cathartica, Rhamnus frangula*)

Description:

- Deciduous shrubs, typically six to nine feet tall at maturity, occasionally reaching 25 feet.
- Bark is dark gray and the inner bark is orange (easily seen when the branch is cut).
- Oblong to elliptical toothed, dark green leaves (1.5 to 3 inch long, slightly serrate) with sharp thorns at the tips of branches. Leaves are typically subopposite but can be found in opposite or alternate arrangements.
- Yellow-green, 4-petaled flowers in clusters appear in the spring.
- Purple-black berries (0.25 inch diameter) in late summer to early spring on female plants.

European buckthorn is well established in New England and rapidly spreading westward. Glossy buckthorn is an aggressive invader of wet soils, capable of growing in both full sun and heavily shaded conditions. European buckthorn also grows well in a wide variety of upland habitats, including old fields and roadsides. Both species of buckthorn are a nuisance species that aggressively out-competes native flora and can form large colonies. Under full-sun conditions, young individual plants can produce seed in only a few years. In heavily shaded habitats, seed production may be significantly delayed. The black fruits are effectively dispersed by a variety of birds and mice.

Control Measures:

No effective biological controls of European or glossy buckthorn that are feasible are known at this time. Buckthorn seedlings and rootstock can be manually removed. For larger plants, the stems should be cut at least twice in one season (June and August). This treatment repeated for 2 or 4 successive years may control the plant. Painting the cut stumps with undiluted glyphosate or triclopyr will speed the eradication process. As buckthorns tend to hold their foliage longer than other plants in the fall, a mid to late fall foliar application of glyphosate solution is typically effective and reduces the chances of injuring other plants. Because plants that appear to have been killed can resprout even several years after treatment with herbicide, annual monitoring should be conducted and follow-up treatments made as needed.

Garlic Mustard (*Alliaria officinalis*)

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Garlic Mustard (*Alliaria officinalis*)

Description:

- Low-growing, herbaceous, perennial plants; typically growing in dense stands
- First-year plants are basal rosettes with green, heart-shaped, 1-6 in. (2.5-15.2 cm) long leaves. Second-year plants produce a 1-4 ft. (0.3-1.2 m) tall flowering stalk.
- Strongly toothed, triangular leaves with garlic odor when crushed.
- Small, white flowers in the early spring.

Native to Europe, this biennial wildflower (e.g. seeds over-winter prior to germination) tends to grow in woodlands and floodplains, where it out-competes native herbaceous plants. The plant can self-pollinate, and seed germination is prolific, starting earlier in spring (late February/early March) than most native wildflowers. Plant growth may extend into the winter months provided temperatures are above freezing and there is no snow cover. Garlic mustard spreads from established patches of infestation along an invasion front. Satellite infestations occur when seeds are transported by wind or wildlife into new areas, most often along trails, roads or forest edges. It is a severe threat to many natural areas where it occurs because of its ability to grow to the exclusion of other herbaceous species.

Control Measures:

Biological control of garlic mustard is being explored by a consortium coordinated through Cornell University and numerous state and federal partners. To date, an effective biological control agent that feeds exclusively on garlic mustard has not been identified. Removing individual garlic mustard plants manually is the simplest and most cost effective approach to maintaining small or isolated infestations. When pulling plants, it is important to remove the stem as well as the entire root system, since buds located within the root crown can produce additional stems. All pulled plants should be removed from the site as seed ripening continues even after plants are pulled. Care should be taken to minimize soil disturbance but to remove all root tissues. Soil disturbance can bring garlic mustard seeds to the surface, thus creating a favorable environment for their germination. To avoid this, soil should be tamped down firmly after removing the plant. Re-sprouting is uncommon but may occur from mature plants not entirely removed. Repeated hand pulling of garlic mustard is reported to be effective for control in small areas, but has limitations and is labor intensive. Specifically, seeds remain viable in the soil for up to five years so it is necessary to remove all garlic mustard in an area every year until the seed bank is exhausted and seedlings no longer appear. This will require multiple efforts each year as rosettes can continue to bolt and produce flowers over an extended period (April-June). Accordingly, manual garlic mustard removal should be part of the long-term maintenance.

For large populations of garlic mustard, cutting may be a viable option. The stems should only be cut when in flower (in late spring or early summer) down to ground level using a string trimmer. Cut stems should be immediately removed to prevent maturing of seeds. An annual program of trimming should continue until the seedbank is depleted.

Multiflora Rose (*Rosa multiflora*)

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Multiflora Rose (*Rosa multiflora*)

Description:

- Prolific shrub with multiple thorny, arching stems; capable of reaching a height of ten feet.
- Leaves are pinnately compound and composed of five to ten one-inch long leaflets (1-1.5 inch long, serrated edges).
- Clusters of single, white to pinkish, five petaled flowers appear in June
- Small red fruits (hips) in August and persisting through winter.

Multiflora rose tends to form into dense thickets. This shrub was introduced to the east coast of the United States from Japan and commonly used as a conservation and ornamental landscape plant. Multiflora rose tolerates a variety of soil and light conditions and spreads primarily through seeds consumed by birds. An individual plant may produce up to 1 million seeds per year which can remain dormant in the soil for up to 20 years. The plant can also root from the canes that contact the soil surface. The plant spreads quickly once established, growing up to 1 to 2 feet per week.

Control Measures:

No effective biological controls that prohibit Multiflora rose growth are known at this time. Rose rosette disease is a sometimes fatal viral disease that attacks multiflora rose; however, this disease is not considered an effective biological control because it may infect other rose species, as well as apple trees, plum trees, and some types of berries. The spread of multiflora rose can be hindered by repeated cutting during the growing season. All stems should be cut, and new stems that appear should also be removed in the same growing season. This treatment will most likely need to be repeated for several years to achieve adequate control. Hand cutting is difficult due to the thorns and long stems. Painting the cut stumps with undiluted glyphosate or triclopyr will speed the eradication process but is difficult given the large number of branches. A foliar application of glyphosate is best applied after flowering (early summer) to early fall. A foliar application of triclopyr is best applied in spring before and during flowering. In large areas of multiflora rose, repeated mowing three to six times a year has proved effective.

Because plants that appear to have been killed can resprout even several years after treatment with herbicide, annual monitoring should be conducted and follow-up treatments made as needed.

Norway Maple (*Acer platanoides*)

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Norway Maple (*Acer platanoides*)

Description:

- Fast-growing deciduous tree, 40 to 60 feet tall.
- Regularly grooved bark
- Palmately lobed, opposite leaves with 5-7 lobes. The margins are marked with a few large teeth.
- Inconspicuous flowers occurs in the early spring before the leaves emerge.
- Fruit is large double samaras in late summer. Norway maple seeds are typically flatter then sugar or red maples.
- Norway Maples, unlike similar maples, exude a milky sap from the end of its leafstalks when broken.

Norway maple often outcompetes other native deciduous trees and is highly tolerant to variations in environmental conditions, including soil type and moisture regime. Its thick foliage tends to over-shade the understory and groundcover layers, stressing native shrubs and herbs. Shade tolerant, the seedlings quickly take over understory areas. It is often overlooked due to its resemblance to sugar maple (*Acer saccharinum*) and has been planted extensively as an ornamental tree. Native to continental Europe, this tree spread south from Norway, and was likely introduced to North America in the mid 1700's.

Control Measures:

Biological control agents are not available to check the invasion of Norway maple. Large areas of seedlings, if they occur, can be controlled with mowing. Manual cutting or removal of large trees alone is also not an effective maintenance option as it quickly resprouts. In order to effectively discourage the growth and dispersion of Norway maple, a combination of manual cutting and removal combined with a comprehensive chemical treatment of the stumps and shoots is the most effective means of maintaining this invasive species. A direct application of glyphosate solution applied to the foliage or stumps cut near the ground is recommended.

Oriental Bittersweet (*Celastrus obiculatus*)

Photo: Will Cook @ http://www.duke.edu/~cwcook/trees/ (Accessed 09/17/2008)

James R. Allison, Georgia Department of Natural Resources, www.forestryimages.org

Oriental Bittersweet (*Celastrus obiculatus*)

Description:

- Deciduous, woody, climbing vine that has a twining or trailing growth pattern (up to 60 foot long over five inches in diameter).
- Light green leaves (2 to 5 inches long) are oval to nearly round with a yellow fall color.
- Small, inconspicuous, axillary flowers develop in the spring.
- Copious amounts of bright yellow to red round berries cover the plant from late summer to late fall. . It closely resembles American bittersweet (*Clematis scandens*), but can be distinguished because American bittersweet has flowers and fruits at the ends of branches, rather than in the axils of the leaves.

Berry-covered branches are commonly used in dried arrangements. Native to eastern Asia, Japan, Korea and China, Oriental bittersweet was first introduced into the United States in the 1860s. Oriental bittersweet typically prefers roadsides, hedgerows and thickets, but its shade tolerance has allowed it to spread into forested areas. It reproduces by seeds, stolons, rhizomes, and root suckers. Dense stands of vines can shade and suppress native vegetation. Tree and shrub stems are weakened and killed by the twining and climbing growth which twists around and eventually constricts solute flow. Trees with girdled stems and large amounts of vine biomass in their canopies are more susceptible to damage by wind, snow and ice storms.

Control Measures:

No effective biological controls that prohibit Oriental bittersweet growth are known at this time. For manual removal, the vines should be cut as close to the ground as possible. Frequent recutting of the sprouts will be required until the energy in the rootstock is exhausted. Grubbing of the rootstock and runners by a pulaski or similar tool is recommended.

Oriental bittersweet is best treated with triclopyr as it is fairly tolerant of glyphosate. As the plant is usually intertwined in trees, the vine should be manually cut and the stump painted with undiluted triclopyr. The vine is persistent and repeated applications may be needed if resprouting occurs.

Poison Ivy (*Toxicodendron radicans*)

Jennifer Anderson @ USDA-NRCS PLANTS Database

Jennifer Anderson @ USDA-NRCS PLANTS Database

Poison Ivy (*Toxicodendron radicans*)

Description:

- Can both grow as a creeping groundcover and a climbing vine, sometimes a small shrub (2 to 5 foot high).
- Leaves composed three leaflets but may vary from groups of three to nine leaflets. They can be stiff, leathery, or thin, hairy or hairless, shiny or dull, toothed or not, and reddish when young, 4-14" long. Leaves have an intense red color in the fall
- Yellow or green flowers from May to July.
- Small, white, round berries in clusters appears in August through October.

The single-seeded fruit are eaten by a variety of birds and the fruit is dispersed by birds after passing through their digestive tract. Once established, the plant continues to spread by producing shoots from its extensive underground stems (rhizomes). The plant is spread by creeping rootstocks that extend from the parent plant. New plants can sprout from a small, buried root section that escapes cultural control attempts. Poison ivy can both grow as a creeping groundcover and a climbing vine. Like Oriental bittersweet, poison ivy vines can girdle trees branches and weigh down the entire tree making the tree susceptible to wind, snow, and ice damage.

Control Measures:

Efforts towards control and removal should be directed in areas adjacent to pathways and other pedestrian areas. As the plant is very fast growing, plants should be trimmed and removed a minimum of eight to ten feet from the edge of any pedestrian area. Repeated trimming and removal should occur on at least an annual basis. Since poison ivy is not a invasive species but rather a native nuisance plant, a feasible option is to leave the plants undisturbed and post signage warning visitors of poison ivy exposure. Poison ivy is a native species to New England and therefore its natural control agents are already present. Consequently, biological control is not an option for the control of poison ivy. Burning this invasive species to remove it from an area is never recommended for the control of poison ivy, as it creates a serious health hazard and does not effectively reduce infestations. Due to the prevalence of poison ivy within the site combined with the public hazards it presents, control of this species is likely best accomplished with the complete manual removal of the plant followed by periodic chemical applications and monitoring. Caution must be taken to avoid skin contact with any part of the poison ivy plant or its oils that may contaminate clothing. The oil of the plant, which causes the rash, can remain on all parts of the plant, including the woody stem, throughout the year.

In order to effectively eradicate poison ivy utilizing the manual removal method, the entire plant must be removed. When the soil is wet, the roots should be dug up and removed completely from the soil as any root sections left will sprout. Manually removing the roots and stems will diminish the ability of the plant to produce shoots will be minimized. Repeated cultivation will eventually eliminate poison ivy because the plant does not regenerate easily from plant fragments. Climbing vines of poison ivy, like those found within the upland sections of the site, can be cut and pulled from the trees, fence posts, and other structures. Manual removal of poison ivy should is best accomplished in the winter when the plants are dormant reducing the risk of exposure. Poison ivy clippings and roots should be transported from the site and disposed of properly.

Another option available to remove poison ivy includes chemical application of glyphosate. Leaves can be selectively painted with the solution using a disposable brush or cotton rag and spot treatment will minimize the chance of the herbicide drifting onto adjacent, desirable vegetation. Larger areas of poison ivy are best handled with foliar spraying of glyphosate. Repeated applications of herbicide may be necessary due to the aggressive nature of this plant.

Common Pokeweed (*Phytolacca americana L.*)

Algirdas @ Wikipedia.com

Ted Bodner @ USDA-NRCS PLANTS Database

Common Pokeweed (*Phytolacca americana L.*)

Description:

- A tall perennial that grows from a thick, fleshy root.
- Stout, smooth, hollow, purplish stem that is extensively branched and attains a height of 2 to 8 feet.
- Leaves can be large (10 inches long) and are ovate-shaped and dark green.
- The fruit develops into large, lens shaped, glossy dark purple or black berries.

Common pokeweed is a native of North America but has weedy qualities and contains a high level of toxins throughout the plant that can harm humans and animals but only if internally ingested. Birds eat the berries and scatter the seeds. Once common pokeweed becomes established, it regrows each year from a large, fleshy taproot. Additionally, plants can produce anywhere from a few thousand seeds to over 48,000 seeds per plant. Seeds can remain viable in the soil for over 40 years.

Control Measures:

If only a few plants occur in an area, pull them up with the entire root system intact and dispose of them off-site. Spot applications of glyphosate can severely injure or kill the plant. Since pokeweed is a perennial with energy stored in its large taproot, a single herbicide application will probably not provide acceptable control and will require repeated treatments.

Porcelain Berry (*Ampelopsis brevipedunculata*)

James H. Miller, USDA Forest Service, www.forestryimages.org

James H. Miller, USDA Forest Service, www.forestryimages.org

Porcelain Berry (*Ampelopsis brevipedunculata*)

Description:

- Deciduous, woody, perennial vine that twines with the help of non-adhesive tendrils that occur opposite the leaves and closely resembles native grapes in the genus *Vitis*.
- The stem pith of porcelain berry is white (grape is brown) and continuous across the nodes (grape is not), the bark has lenticels (grape does not), and the bark does not peel (grape bark peels or shreds).
- Alternate, broadly ovate leaves are with a heart-shaped base, palmately 3-5 lobed or more deeply dissected, and have coarsely toothed margins.
- Greenish to white, inconspicuous flowers develop in small clusters in mid-summer.
- Fruits appear in September and October and are colorful, changing from pale lilac, to green, to a bright blue.

Porcelain berry spreads by seed and through vegetative means. The colorful fruits, each with two to four seeds, attract birds and other small animals that eat the berries and disperse the seeds in their droppings. The taproot of porcelain-berry is large and vigorous. Resprouting will occur in response to cutting of above-ground portions. Porcelain berry vines can grow up to 15 ft. in a single growing season, especially when rainfall is abundant, and seed may be viable in the soil for several years.

Control Measures:

Hand pulling of vines in the fall or spring will prevent flower buds from forming the following season. Where feasible, plants should be pulled up by hand before fruiting to prevent the production and dispersal of seeds. If the plants are pulled while in fruit, the fruits should be bagged and disposed of in a landfill. For vines too large to pull out, cut them near the ground and either treat cut stems with undiluted glyphosate or triclopyr or repeated cutting of regrowth as needed. For large infestations, a foliar application may be used. The most effective control has been achieved using triclopyr. From summer to fall, cut plants first and allow time for regrowth and then apply the herbicide.

Tree-of-Heaven; Ailanthus (*Ailanthus altissima*)

Jan Samanek, State Phytosanitary Administration, www.forestryimages.org

James H. Miller, USDA Forest Service, www.forestryimages.org

Tree-of-Heaven; Ailanthus (*Ailanthus altissima*)

Description:

- Typically a small to medium tree but capable of reaching 80 to 100 feet in height.
- Smooth gray bark.
- One to three foot long, pinnately compound leaves composed of twelve to thirty leaflets, closely resembling staghorn sumac leaves. Different from sumac, the leaflets usually have one to four small round glands on their undersides that produce a foul smell.
- Yellow flowers cluster above the leaves in late May through early June.
- Fruit produced on female plants are tan to reddish, single winged and wind and water-dispersed.

Tree of Heaven, also commonly known as Chinese sumac or simply Ailanthus, is a persistent and aggressive weed throughout much of Europe and North America. Ailanthus grows quickly and can reach a height of eight feet in its first year. Single trees may produce up to 350,000 seeds in one year. Seeds are small, easily dispersed by wind, and mostly viable. Trees also reproduce readily via root sprouts that can emerge up to 50 feet from the nearest trunk and readily forms into extensive and dense thickets which displace and shade out other vegetation. It is a ready colonizer of disturbed sites both in urban and natural areas but is usually intolerant of full shade. Once established, its primary mode of reproduction is through root suckers.

Control Measures:

No effective biological controls of ailanthus that are feasible are known at this time. Young seedlings of ailanthus can be pulled by hand, but they develop a significant taproot within 3 months and then become very difficult to remove. Thus, plants should be pulled as soon as they are large enough to grasp. Seedlings are best pulled after a rain when the soil is loose. The entire root must be removed since broken fragments may re-sprout.

Larger trees may be cut at ground level with power or manual saws. Cutting is most effective when trees have begun to flower in late spring to prevent seed production. Because ailanthus spreads by suckering, aggressive re-sprouts are common after treatment. Two cuttings per year may be necessary, one early in the growing season and one late in the growing season. Although plants may not be killed after cutting, seed production will be inhibited and vigor will be reduced. If continued for several years, plants will be severely stressed by cutting and will eventually be killed. Painting the stumps with undiluted glyphosate or triclopyr will speed the eradication process. Foliar herbicide treatment is another option to control re-sprouts.

Girdling of the bark can be used for large trees. Using a hand-axe, make a cut through the bark approximately 6 inches above the ground, and cut completely around the trunk. Be sure that the cut goes well into or below the cambium layer. This method will kill the top of the tree but re-sprouts are common, and may require follow-up treatments for several years.

Winged euonymus, Burning Bush (*Euonymous alatus*)

James H. Miller, USDA Forest Service, www.forestryimages.org

James H. Miller, USDA Forest Service, www.forestryimages.org

Winged euonymus, Burning Bush (*Euonymous alatus*)

Description:

- Fast growing deciduous shrub that can reach a height of 15 to 20 feet.
- Four corky ridges appear along the length of some, but not all, of the young stems.
- Opposite, dark-green leaves are one to three inches long and ½" to 1 ½" wide with marginal serrations. In fall the leaves turn from a purplish-red to scarlet before dropping.
- Inconspicuous, greenish yellow flowers, with 4 petals developing in the spring and lay flat against the leaves.
- Fruit, occurring in September and October, are reddish capsules that split to reveal orange fleshy seeds.

Winged euonymus, also known as burning bush, is a common ornamental landscape plant that is still planted mainly for it bright red fall foliage and unique corky wings on it branches. It is native to China and Japan, Seeds which are feasted upon by birds, a principal means of seed dispersal. Germination of seeds also readily occurs underneath the mother plant. The plant is adaptable to a number of environmental conditions and out-competes native species in both open woodlands and fields. It has recently started to show up on its own in many areas of Massachusetts.

Massachusetts now considers winged euonymus an invasive species and was placed on the Massachusetts Prohibited Plant List. It will be prohibited for sale or distribution by January 1, 2009.

Control Measures:

No effective biological controls of winged euonymus that are feasible are known at this time. Control of this plant is difficult because it produces a tremendous amount of seed. Seedlings up to two feet tall can be easily hand-pulled, especially when the soil is moist. Larger plants and their root systems can be dug out with a spading fork or pulled with a weed wrench. Larger shrubs can be cut. The stump must be ground out or the re-growth clipped. The cut stump can also be painted with undiluted glyphosate or triclopyr immediately after cutting. Where populations are so large that cutting is impractical, glyphosate or triclopyr may be applied as a foliar spray. This is most effective during the early summer months. An extremely labor intensive method to prevent spread, while keeping the original plant, is to trim off all the flowers prior to seed formation.

Appendix E Sources

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Appendix F
Massachusetts Prohibited Plant List

Massachusetts Prohibited Plant List

With links (common name) to Invasive Plant Atlas of New England (IPANE)

**Effective January 1, 2006: The importation of the plants listed below are banned by the listed importation ban date. The one and three year propagation ban phase-out dates listed - are allowed only on plants that have entered the state *prior to the listed importation ban date* and remain in the channels of trade within the Commonwealth.

Latin	Common	Importation Ban	Propagation Ban
Acer platanoides	Norway maple	July 1, 2006	January 1, 2009
Acer pseudoplatanus	Sycamore maple	July 1, 2006	January 1, 2009
Aeginetia		January 1, 2006	January 1, 2006
Aegopodium podagraria	Bishop's goutweed; bishop's weed; goutweed	July 1, 2006	January 1, 2009
Ageratina adenophora	crofton weed	January 1, 2006	January 1, 2006
Ailanthus altissima	Tree of Heaven	January 1, 2006	January 1, 2006
Alectra Thunb.		January 1, 2006	January 1, 2006
Alliaria petiolata	Garlic mustard	January 1, 2006	January 1, 2006
Alternanthera sessilis	Sessile joyweed	January 1, 2006	January 1, 2006
Ampelopsis brevipedunculata	Porcelain-berry; Amur peppervine	January 1, 2006	January 1, 2006
Anthriscus sylvestris	Wild chervil	January 1, 2006	January 1, 2006
Arthraxon hispidus	Hairy joint grass; jointhead; small carpetgrass	January 1, 2006	January 1, 2006
Asphodelus fistulosus	onion weed	January 1, 2006	January 1, 2006
Avena sterilis	animated oat	January 1, 2006	January 1, 2006
Azolla pinnata	mosquito fern	January 1, 2006	January 1, 2006
Berberis thunbergii	Japanese Barberry	July 1, 2006	January 1, 2009
Berberis vulgaris	Common barberry; European barberry	January 1, 2006	January 1, 2006
Cabomba caroliniana	Carolina Fanwort; fanwort	January 1, 2006	January 1, 2006

Cardamine impatiens	Bushy rock-cress; narrowleaf bittercress	January 1, 2006	January 1, 2006
Carex kobomugi	Japanese sedge; Asiatic sand sedge	January 1, 2006	January 1, 2006
Carthamus oxyacantha Bieb.	wild safflower	January 1, 2006	January 1, 2006
Caulerpa taxifolia		January 1, 2006	January 1, 2006
Celastrus orbiculatus	Oriental bittersweet; Asian or Asiatic bittersweet	January 1, 2006	January 1, 2006
Centaurea biebersteinii	Spotted knapweed	January 1, 2006	January 1, 2006
Chrysopogon aciculatus	pilipiliula	January 1, 2006	January 1, 2006
Commelina benghalensis	Benghal dayflower	January 1, 2006	January 1, 2006
Crupina vulgaris	common crupina	January 1, 2006	January 1, 2006
Cuscuta	Dodder	January 1, 2006	January 1, 2006
Cynanchum louiseae	Black Swallow-wort; Louise's swallow-wart; Autumn olive	January 1, 2006	January 1, 2006
Cynanchum rossicum	European swallow-wort; pale	January 1, 2006	January 1, 2006
Digitaria abyssinica		January 1, 2006	January 1, 2006
Digitaria scalarum	African couch grass	January 1, 2006	January 1, 2006
Digitaria velutina	velvet fingergrass	January 1, 2006	January 1, 2006
Drymaria arenarioides	alfombrilla	January 1, 2006	January 1, 2006
Egeria densa	Brazilian waterweed; Brazilian eloda	January 1, 2006	January 1, 2006
Eichhornia azurea	anchored waterhyacinth	January 1, 2006	January 1, 2006
Elaeagnus umbellata	Autumn Olive	January 1, 2006	January 1, 2006
Emex australis	three-cornered jack	January 1, 2006	January 1, 2006
Emex spinosa	devil's thorn	January 1, 2006	January 1, 2006
Epilobium hirsutum	Hairy willow-herb; Codlins and Cream	January 1, 2006	January 1, 2006
Euonymus alatus	Winged euonymus; Burning Bush	July 1, 2006	January 1, 2009
Euphorbia esula	Leafy Spurge; Wolf's Milk	January 1, 2006	January 1, 2006
Euphorbia cyparissias	Cypress spurge	January 1, 2006	January 1, 2006
Festuca filiformis	Hair fescue; fineleaf sheep fescue	January 1, 2006	January 1, 2006

Frangula alnus	European buckthorn; glossy buckthorn	January 1, 2006	January 1, 2006
Galega officinalis	goatsrue	January 1, 2006	January 1, 2006
Glaucium flavum	Sea or horned poppy; yellow horn poppy	January 1, 2006	January 1, 2006
Glyceria maxima	Tall mannagrass; reed mannagrass	January 1, 2006	January 1, 2006
Heracleum mantegazzianum	Giant hogweed	January 1, 2006	January 1, 2006
Hesperis matronalis	Dames Rocket	January 1, 2006	January 1, 2006
Homeria	Cape tulip	January 1, 2006	January 1, 2006
Humulus japonicus	Japanese hops	January 1, 2006	January 1, 2006
Hydrilla verticillata	Hydrilla; water-thyme; Florida elodea	January 1, 2006	January 1, 2006
Hygrophila polysperma	Miramar weed	January 1, 2006	January 1, 2006
Imperata brasiliensis	Brazilian satintail	January 1, 2006	January 1, 2006
Ipomoea aquatica Forsk.	Chinese waterspinach	*Permit required - contact Department *January 1, 2006	*Permit required - contact Department January 1, 2006
Iris pseudacorus	Yellow Iris	July 1,2006	January 1, 2007
Ischaemum rugosum	murain-grass	January 1, 2006	January 1, 2006
Lagarosiphon major	oxygen weed	January 1, 2006	January 1, 2006
Lepidium latifolium	Broad-leafed pepperweed; tall pepperweed	January 1, 2006	January 1, 2006
Leptochloa chinensis	Asian sprangletop	January 1, 2006	January 1, 2006
Ligustrum obtusifolium	Border privet	January 1, 2006	January 1, 2006
Limnophila sessiliflora	ambulia	January 1, 2006	January 1, 2006
Lonicera japonica	Japanese honeysuckle	July 1, 2006	January 1, 2009
Lonicera maackii	Amur honeysuckle	July 1, 2006	January 1, 2009
Lonicera morrowii	Morrow's honeysuckle	July 1,2006	IJanuary 1, 2009
Lonicera tatarica	Tatarian honeysuckle	July 1,2006	January 1, 2009
Lonicera x bella *[morrowii x tatarica]*	Bell's honeysuckle	July 1,2006	IJanuary 1, 2009
Lycium ferrocissimum	African boxthorn	January 1, 2006	January 1, 2006

Lysimachia nummularia	Creeping jenny; moneywort	July 1, 2006	January 1, 2009
Lythrum salicaria	Purple loosestrife	January 1, 2006	January 1, 2006
Melaleuca quinquenervia	melaleuca	January 1, 2006	January 1, 2006
Melastoma malabathricum		January 1, 2006	January 1, 2006
Microstegium vimineum	Japanese stilt grass; Nepalese browntop	January 1, 2006	January 1, 2006
Mikania cordata	mile-a-minute	January 1, 2006	January 1, 2006
Mikania micrantha	mile-a-minute	January 1, 2006	January 1, 2006
Mimosa diplotricha		January 1, 2006	January 1, 2006
Mimosa invisa	giant sensitive plant	January 1, 2006	January 1, 2006
Mimosa pigra L.	catclaw mimosa	January 1, 2006	January 1, 2006
Miscanthus sacchariflorus	Plume grass; Amur silvergrass	July 1,2006	January 1, 2007
Monochoria hastata	monochoria	January 1, 2006	January 1, 2006
Monochoria vaginalis	pickerel weed	January 1, 2006	January 1, 2006
Myosotis scorpioides	Forget-me-not	July 1,2006	January 1, 2007
Myriophyllum aquaticum	Parrot-feather; water-feather; Brazilian water-milfoil	January 1, 2006	January 1, 2006
Myriophyllum heterophyllum	Variable water-milfoil; Two-leaved water-milfoil	January 1, 2006	January 1, 2006
Myriophyllum spicatum	Eurasian or European water-milfoil; Spike water-milfoil	January 1, 2006	January 1, 2006
Najas minor	Brittle water-nymph; lesser naiad	January 1, 2006	January 1, 2006
Nassella trichotoma	serrated tussock	January 1, 2006	January 1, 2006
Nymphoides peltata	Yellow floating heart	January 1, 2006	January 1, 2006
Opuntia aurantiaca	jointed prickly pear	January 1, 2006	January 1, 2006
Orobanche L.	broomrape	January 1, 2006	January 1, 2006
Oryza longistaminata	red rice	January 1, 2006	January 1, 2006
Oryza punctata	red rice	January 1, 2006	January 1, 2006
Oryza rufipogon Griffiths	red rice	January 1, 2006	January 1, 2006
Ottelia alismoides	duck-lettuce	January 1, 2006	January 1, 2006
Paspalum scrobiculatum	Kodo-millet	January 1, 2006	January 1, 2006

Pennisetum clandestinum	kikuyugrass	January 1, 2006	January 1, 2006
Pennisetum macrourum Trin.	African feathergrass	January 1, 2006	January 1, 2006
Pennisetum pedicellatum Trin.	kyasuma-grass	January 1, 2006	January 1, 2006
Pennisetum polystachyon	missiongrass	January 1, 2006	January 1, 2006
Phalaris arundinacea	Reed canary-grass	January 1, 2006	January 1, 2006
Phellodendron amurense	Amur cork-tree	January 1, 2006	January 1, 2006
Phragmites australis	Common reed	January 1, 2006	January 1, 2006
Polygonum cuspidatum	Japanese knotweed; Japanese arrowroot	January 1, 2006	January 1, 2006
Polygonum perfoliatum	Mile-a-minute vine or weed; Asiatic Tearthumb	January 1, 2006	January 1, 2006
Potamogeton crispus	Crisped pondweed; curly pondweed	January 1, 2006	January 1, 2006
Prosopis pallida	kiawe	January 1, 2006	January 1, 2006
Prosopis reptans	tornillo	January 1, 2006	January 1, 2006
Prosopis strombulifera	Argentine screwbean	January 1, 2006	January 1, 2006
Prosopis velutina		January 1, 2006	January 1, 2006
Pueraria montana	Kudzu; Japanese arrowroot	January 1, 2006	January 1, 2006
Ranunculus ficaria	Lesser celandine; fig buttercup	January 1, 2006	January 1, 2006
Ranunculus repens	Creeping buttercup	January 1, 2006	January 1, 2006
Rhamnus cathartica	Common buckthorn	January 1, 2006	January 1, 2006
Robinia pseudoacacia	Black locust	January 1, 2006	January 1, 2006
Rorippa amphibia	Water yellowcress; great yellowcress	January 1, 2006	January 1, 2006
Rosa multiflora	Multiflora rose	January 1, 2006	January 1, 2006
Rottboellia cochinchinensis	itchgrass	January 1, 2006	January 1, 2006
Rubus fruticosus	wild blackberry complex	January 1, 2006	January 1, 2006
Rubus moluccanus	wild blackberry	January 1, 2006	January 1, 2006
Rubus phoenicolasius	Wineberry; Japanese wineberry; wine raspberry	January 1, 2006	January 1, 2006
Saccharum spontaneum	wild sugarcane	January 1, 2006	January 1, 2006

Sagittaria sagittifolia	arrowhead	January 1, 2006	January 1, 2006
Salsola vermiculata	wormleaf salsola	January 1, 2006	January 1, 2006
Salvinia auriculata	giant salvinia	January 1, 2006	January 1, 2006
Salvinia biloba	giant salvinia	January 1, 2006	January 1, 2006
Salvinia herzogii de la Sota	giant salvinia	January 1, 2006	January 1, 2006
Salvinia molesta	giant salvinia	January 1, 2006	January 1, 2006
Senecio jacobaea	Tansy ragwort; stinking Willie	January 1, 2006	January 1, 2006
Setaria pallidifusca	cattail grass	January 1, 2006	January 1, 2006
Setaria pumila		January 1, 2006	January 1, 2006
Solanum tampicense	wetland nightshade	January 1, 2006	January 1, 2006
Solanum torvum	turkeyberry	January 1, 2006	January 1, 2006
Solanum viarum	tropical soda apple	January 1, 2006	January 1, 2006
Sparganium erectum	exotic bur-reed	January 1, 2006	January 1, 2006
Spermacoce alata	borreria	January 1, 2006	January 1, 2006
Striga Lour.	witchweed	January 1, 2006	January 1, 2006
Trapa natans	Water-chestnut	January 1, 2006	January 1, 2006
Tridax procumbens	coat buttons	January 1, 2006	January 1, 2006
Tussilago farfara	Coltsfoot	January 1, 2006	January 1, 2006
Urochloa panicoides	liverseed grass	January 1, 2006	January 1, 2006