Sustainable Trees and Shrubs

An Introduction to the Sustainable Plant List

Plant lists are invaluable resources for garden enthusiasts, designers, nursery trades people and landscape architects. We constantly consult books and nursery catalogs which list landscape plants, especially those that organize plants by their characteristics and landscape uses. As times and fashions change, new plants emerge, old plants are rediscovered, and others lose favor and disappear from these lists. But one point remains clear: listing plants encourages their widespread distribution and use. The purpose of this publication is to encourage the production and use of landscape plants that are more sustainable: those which are not invasive and require reduced inputs of pesticides, water and maintenance.

Why Sustainable?

Not long ago, plants from around the world could be introduced into the landscape and provided with the care needed to ensure their long-term beauty and success. Pesticide use was widespread and its effectiveness unquestioned, labor for intensive care was available and affordable, and the supply of natural resources was considered limitless. Much has changed in recent decades; we have become painfully aware of the limits of our natural resources and the precarious balance of nature in which we play a pivotal role. Many in our society are looking for ways to reduce human impacts on the environment. Others lack the time or resources to manage pests or maintain shrubs that require frequent pruning or irrigation. These people should find the sustainable plant list an invaluable resource.

Careful plant selection is the key first step in developing a balanced and self-perpetuating landscape. However, plant survival with minimal maintenance is not the only issue in sustainability. We are having more difficulty with invasive exotic plants which have escaped from managed landscapes, displacing native plants and disrupting natural ecosystems. The use of these potential invasives cannot be seen as sustainable except in very controlled situations.

This list of sustainable plants is not

offered as the entire answer. Proper siting, planting and maintenance are necessary for a plant to prosper in the landscape. Therefore, climatic conditions, exposure to sun and wind, subsurface soil and moisture conditions, etc. must be considered when selecting plants for a particular location. Sustainable or not, if one ignores the site and a plant's cultural requirements, that plant will suffer.

A List for Professionals

In preparing this list and the accompanying plant descriptions, we have targeted a professional audience, with an expectation that through time, as these plants become more available, this information will filter down to the consumers. Plants on this list are proven performers in Southern New England (USDA Hardiness Zones 7a–5b), and many of them can be grown both north and south of here (although the pest complexes might change). This list is dynamic and will continue to change as new plants and pests are introduced and as we learn more about existing ones.

The list is only a guide. Plants are included which have qualities appealing to designers and plant lovers alike. Plant descriptions include color, form, texture and growth habits as well as maintenance requirements and hardiness. Many of the plants on the list are well known and currently in production, while others need to be grown and distributed more. We are well aware that it will take a decade or more before some of the newer plants are readily available in the trade.

Many of our favorite plants are not on the list, because serious pests threaten their existence or their maintenance requirements are too high for them to be considered sustainable. That doesn't mean that we won't include a few of them in our landscapes. Life would be indeed dull without a rose, but most of us would not want to maintain a half-acre of them. Plants with occasional pest problems or those with relatively minor problems are included on the list with cautionary notes. It is only those plants with life-threatening or chronic pest problems that are omitted from the list, along with seriously invasive species. The list is not intended to eliminate the production of high maintenance plants with desirable traits. Instead, it is intended to encourage the broader distribution of plants which seem to be better suited to satisfying not only our horticultural requirements, but also our environmental concerns.

Native Plants

There is renewed interest in native plants (those found growing outside of cultivation in this region during pre-Colonial times) which often are better acclimated, less pest prone and more favorable for native wildlife than exotic plants. Native plants are identified in Appendix 2. However, it should be noted that many exotic insect and disease pests have been introduced in the past 300 years. They have virtually eliminated some of our native plants and become serious pests of others. In these cases, it is useful to look to other parts of the world where plants have evolved resistance to these pests. Even without introduced pests, some native plants have problems in our landscapes where they are far removed from their natural environments. A fabulous forest shrub can have serious difficulties when sited between a driveway and a sidewalk. It is likely that a sustainable landscape will feature many native plants, but we think there are many non-natives which should be considered as well.

Planting for Sustainable Landscapes

Introduction

Giving plants a healthy start begins with proper planting. Problems showing up on established plants can often be traced back to poor planting. Traditional planting methods are often passed down through the generations. While some of the old ways are still recommended today, many planting practices are changing to reflect current research and technology. Well-informed landscapers and arborists should be aware of the latest planting and transplanting techniques. This chapter presents the techniques and procedures used to plant and transplant trees and shrubs, and explains how the use of proper planting techniques can improve survival and accelerate establishment.

Selecting and Purchasing Plants

THE RIGHT PLANT

A key to sustainable planting is matching the plant and the conditions of the planting site. The best planting procedures will not save a plant that is poorly suited for the site. Plants vary naturally in their ability to tolerate site conditions such as extreme heat or cold, wet or dry soils, sun or shade. The plant also should not outgrow its allotted space. Plants should be healthy and vigorous when planted. The condition of the roots in particular affects transplant success. The roots should be white and numerous; brown or black roots indicate a health problem.

HANDLING NEW PLANTS

Trees and shrubs are available from the nursery in one of three forms: bare root, balled and burlapped, or container grown. Depending upon site requirements and planting specifications, each form has its advantages and disadvantages.

Bare root plants have had the soil shaken from their roots after digging. Most bare root trees and shrubs are purchased by mail order and planted during the dormant season, before roots and buds begin to grow. Since there is no soil on the roots, it is vital that they be kept moist, and if not planted immediately, that they be stored cold (32°–40°F) with moist packing around the roots. When planted, the roots of bare root plants should be spread evenly in the planting hole.

Container grown plants have been grown for months or years in the container in which they are sold. Container growing is becoming very popular in the nursery trade. Container grown plants may be planted anytime the soil is workable, but may

need special attention to correct compacted or circling roots. When selecting container grown trees and shrubs, always check the roots. For example, not all plants purchased in containers are container grown. Often bare root trees or shrubs are potted in containers, grown for a short time and sold from the nursery. If they are not held for at least a year, the roots may not have established in the container. On the other hand, if plants are grown in their container for too long, the roots may have grown in circles. These roots must be separated and spread out during planting. If the roots are densely matted, the outside of the root mass should be sliced vertically with a sharp knife in a few places to help separate the roots. And unless the container is biodegradable, such as a natural peat pot, it must be removed before planting.

If properly watered and maintained, container grown trees can be planted any time of the year. Early fall planting is especially advantageous because the roots can begin to establish before the plant goes dormant for winter. Early spring, before bud break, is also a good time to plant because the roots begin to grow immediately, and light, temperature and soil moisture levels are optimal. Perhaps the most important factor in successfully transplanting container grown trees is maintaining adequate (not excessive) soil moisture, which encourages roots to grow into the surrounding soil.

Many trees and shrubs are dug in the nursery with root balls intact and wrapped with burlap. Be aware that as much as 95% of the absorbing roots can be lost in digging, though some roots are preserved in the root ball. When selecting a balled and burlapped plant, be sure the ball is solid, with little or no movement of the trunk. The burlap used to wrap the root ball holds the soil ball together and keeps the roots from drying out. Natural fiber burlap is biodegradable and may be left in the hole, though it should be rolled back and completely covered with soil. Some nurseries use treated burlap or synthetic burlap which must be removed at planting. All twine or rope holding the burlap together or tied around the trunk must be removed to avoid girdling. Some larger balled and burlapped trees come in wire baskets that keep the ball together during handling. Although the baskets do not have to be removed, it is best to cut the upper rows when planting. This eliminates interference with rakes or lawn mowers if the tree is planted shallow, and allows roots to grow and spread freely near the surface.

Planting

THE PLANTING HOLE

Installing trees and shrubs properly involves more than just digging holes and setting in plants. The quality of the planting hole will determine the long term health of the root system, and thereby the entire plant. In general, the planting hole should be at least 18 to 24 inches wider in diameter than the root ball. If the soil is compacted or of poor quality, the hole should be even larger, i.e., 3 to 5 times the width of the root ball. The hole should be wider at the

top than the bottom, with sloped walls, because most of the root growth will be shallow and horizontal. Planting too deeply can stress the plant and drown or suffocate the roots. The easiest way to avoid this is never to dig the hole deeper than the root ball. Soft fill should not be left in the bottom of the hole, as the root ball will settle. In almost all types of soil, the tree should be planted slightly shallow, with the top 2-3 inches of the root ball sitting above the surrounding soil grade. Remember, the planting site will be covered with 2-3 inches of mulch by the time you are finished planting.

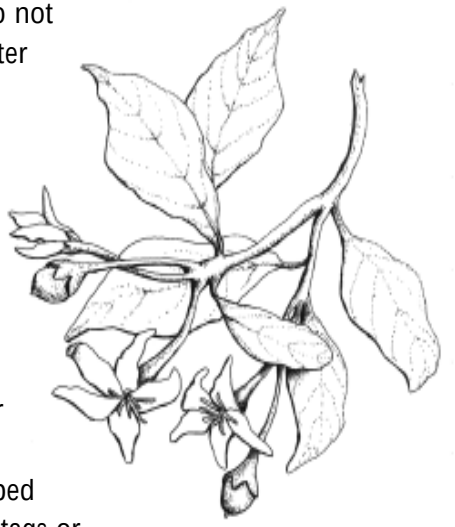
Drainage is also an important consideration in successful planting. Poor drainage kills more plants than any other cause. A poorly prepared planting hole may act as a dish and hold water, especially in clay soils. Oxygen levels are low in the bottom of such holes and not conducive to healthy root growth. Do not put gravel in the bottom of the planting hole; it does not aid drainage.

THE ROOT BALL

Handle roots carefully during planting—small absorbing roots are easily broken. Check balled and burlapped plants to ensure the roots originate near the surface of the ball. When setting the plant in the hole, make sure these roots are no deeper than the soil grade.

BACKFILLING

In most cases, it is best to backfill the hole with the same soil that came out of the hole. Research has shown that soil amendments usually do not improve plant establishment or growth. However, if the natural soil is extremely poor, topsoil may be the only alternative. Strive to match the backfill soil type to the soil type of the site, as closely as possible. Backfilling with a sandy loam in heavy clay soils may cause the planting hole to collect water and suffocate the roots. If soil must be brought to the site, or the backfill must be amended, the hole should be extra wide. This will allow for several years' growth within the new soil. While backfilling, work the soil around the ball so that no air pockets remain. Large pockets of air can allow roots to dry out. Firm the soil so that the plant is vertical and adequately supported, but do not pack the soil. Water thoroughly while backfilling. The remaining soil should be mounded into a berm, on the outer edge of the hole, to collect water over the root zone, especially on sloped sites. Remove all tags or labels so that they will not girdle the trunk or branches as the plant grows.



MULCHING

After filling the planting basin with water and letting it drain, fill the basin with 2 to 3 inches of an organic mulch. This will conserve soil moisture, moderate soil temperature extremes, and reduce competition from weeds and turf. Many organic mulches such as pine needles, bark or wood chips are fine. Make certain the mulch is not touching the plant stem, as this could promote bark decay, crown rot, winter injury or rodent damage. Do not use black plastic or landscape fabric under the mulch, since these materials, sooner or later, restrict water movement and oxygen availability to the roots.

WATER AND FERTILIZER

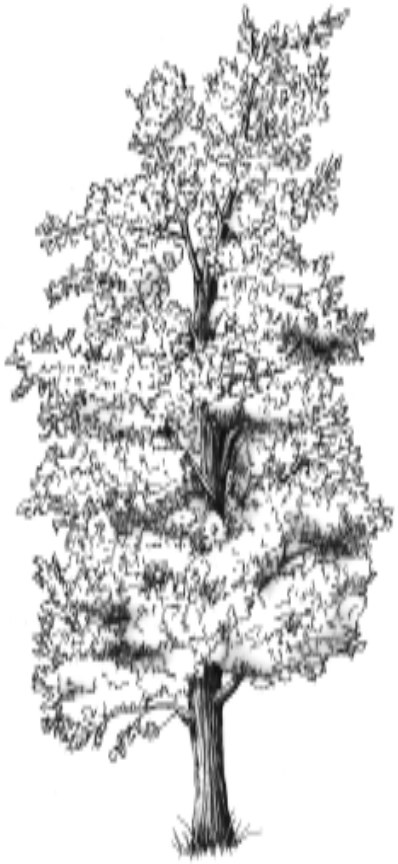
Planting is a major operation from which most trees and shrubs recover slowly. A major portion of the root system is lost in digging, and the plant must reestablish sufficient roots to sustain itself. During this period, the plant's ability to obtain and transport water and minerals is greatly reduced, which results in varying degrees of water stress and transplant shock. For this reason, proper watering is key to the survival of newly planted trees and shrubs. If rainfall is not sufficient (generally 1 inch

per week), the tree should be watered every five to seven days. A slow gentle soaking of the root zone is preferable. The watering schedule should be appropriate for the soil type and drainage—remember that excess water in the planting hole is a leading cause of transplant death.

Since the root system functions of a newly planted tree are limited, fertilization often is not recommended at the time of planting. Excessive fertilizer in the root zone can be damaging, so do not add fertilizer to the backfill. If fertilizer must be used at planting or in the first growing season, apply a controlled-release fertilizer or liquid feed. Fertilizing in the fall when the roots are active can be beneficial. However, most plants received from the nursery require no fertilizer in the first year of establishment.

PRUNING

Plants grow and establish fastest if pruning is minimized at planting. Beyond the removal of broken or damaged branches, it is usually best to avoid heavy pruning.



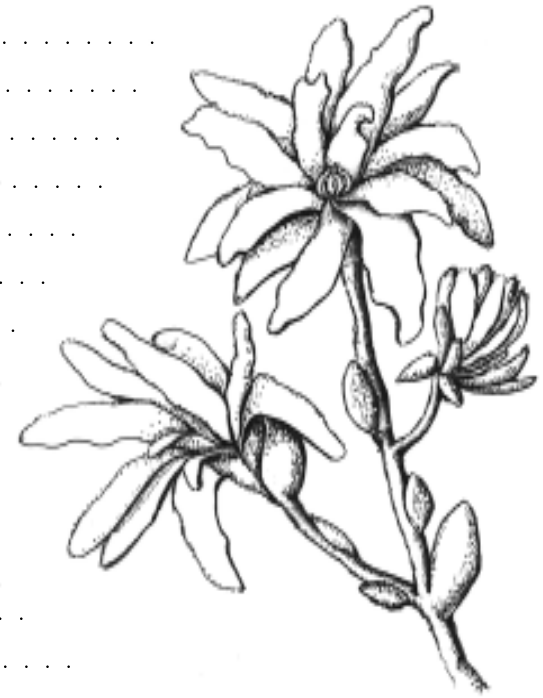
STAKING AND GUYING

Most shrubs do not need to be supported after planting. In general, trees under 8 feet height do not need support either. In fact, staking can have detrimental effects on the development of trunk taper and root growth. Too often, staking materials end up injuring or girdling the tree.

Trees may be supported by up to three stakes. If a single stake is used, it should be placed on the upwind side of the tree. The material used to attach the tree to the stake should be broad, smooth and somewhat elastic. The tree may be attached to the stake at several points along the trunk. However, do not stake the tree too rigidly, as the tree will develop a less sturdy root system and be more subject to girdling. If two support stakes are used, a single, flexible tie attached to the tops of the stakes will be sufficient. Triple staking provides more protection against strong wind and lawn mowers. Support stakes and guy wires generally should be removed after one growing season. If staking is left in place for more than two years, the tree's ability to stand alone may be reduced and the chances of girdling injury are increased.

Planting guidelines are based on information found in the *International Society for Arboriculture Arborist's Certification Study Guide,* the *Penn State University Master Gardener Manual* and *Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines* by Richard W. Harris.

Notes



List of Sustainable Trees and Shrubs

Abelia* x *grandiflora **Glossy Abelia**
Zone 6-9 3-6' x equal spread

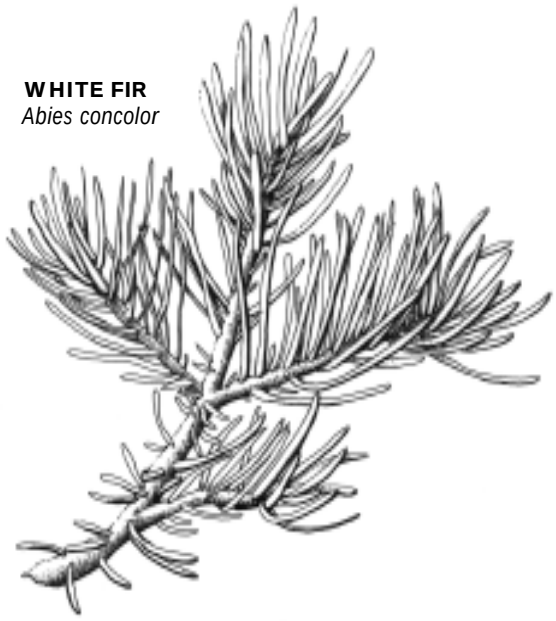
Bronze-red to bronze-purple leaves persist into late fall/ early winter. Flowers are white with a pink blush and bloom from May to frost. Sepals are pink to purple and are quite showy late in the season. Quite hardy and easy to grow. Prefers acid, well-drained, moist soil. Full sun/part shade. Prune dead wood.

Abies cephalonica **Greek Fir**
Zone 5-6 50-75' x 20-30'

Very heat tolerant. Susceptible to spruce mites.

Abies cilicica **Cilician Fir**
Zone 5-6 60-70' x 20-30'

Tolerates heavy clay soils, cold temperatures. Tolerant of high pH soil. Can be invasive.



WHITE FIR
Abies concolor

Abies concolor **White Fir**
Zone 4-7 30-50' x 15-30'

Prefers moist, well-drained, sandy-gravelly loams and full sun. Tolerates heat, drought, cold, intolerant of wet soils. Blue-gray needle color, gray to purple upright cones. Native to Western US. Alternative species for *Picea pungens f. glauca* (Blue Spruce) which is vulnerable to Cooley spruce gall adelgid.

Abies homolepis **Nikko Fir**
Zone 4-6 30-50' x 20-30'

Prefers moist, well-drained soil, pH adaptable, little maintenance required.

Abies koreana **Korean Fir**
Zone 5-6 15-30'

Violet-purple, 2-3" long cones are striking. More heat tolerant than most firs. Prefers moist, well-drained soil. Sun/part shade.

Abies procera **Noble Fir**
Zone 5-6 50-100' x 20-30'

Prefers moist, deep, cool soil. Not tolerant of high pH or wind. Sun/part shade. 'Glauca' has extremely glaucous foliage. Becomes a large tree. Susceptible to spruce mites. Native to Western US.

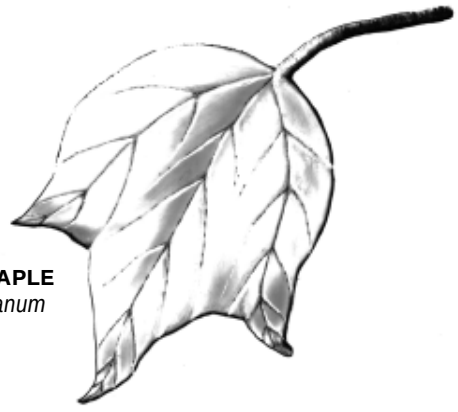
Abies veitchii **Veitch Fir**
Zone 3-6 30-60' x 25-35'

Prefers moist, deep, cool soil. Not tolerant of high pH but tolerates semi-urban conditions. Sun/part shade. Susceptible to spruce mites.

Acanthopanax sieboldianus
(see *Eleutherococcus sieboldianus*)

Acer buergerianum **Trident Maple**
Zone 5-8 20-25' x equal spread

Prefers well-drained, acid soil; good drought resistance, full sun. Grows well under utility lines. Attractive bark on mature specimens.



TRIDENT MAPLE
Acer buergerianum

Acer campestre **Hedge Maple**
Zone 5-8 25-35' x equal spread

Adaptable species, prefers average garden soils but tolerates dry conditions and compaction, acid-alkaline, sunlight shade, withstands shearing. Grows well under utility lines.

Acer ginnala **Amur Maple**
Zone 3-8 15-18' x equal spread

Popular small tree. Very cold hardy, shade and high pH tolerant. May be grown in containers.

Acer griseum
Paperbark Maple
Zone 5-7
20-30' x 1/2 to equal spread

Full sun/partial shade, prefers moist well-drained soils. Relatively maintenance free. Outstanding cinnamon-colored exfoliating bark and red-scarlet fall foliage offer year round interest in the landscape. Slow growing specimen tree.

PAPERBARK MAPLE
Acer griseum

Acer palmatum **Japanese Maple**
Acer japonicum **Fullmoon Maple**
Zone 5-8 15-25' x variable

Moist, well-drained soils high in organic matter, full sun to dappled shade. Dissectum types scorch in full sun if drought stressed. Protect from wind and late frosts. Sited properly, this is an excellent low maintenance plant. Red leaf forms seem to be somewhat more hardy and stress tolerant than green leaf forms.

Acer pennsylvanicum **Striped Maple**
Zone 3-7 15-20' x equal spread

Large shrub or short tree. Prefers semi-shaded woods with well-drained, cool, moist, slightly acid soil. Good native for naturalizing. Green and white striped bark with vibrant yellow fall foliage.

Acer rubrum **Swamp/Red Maple**
Zone 3-9 40-60' x equal spread

Tolerates most soils but prefers moist, acid conditions. Excellent for wet conditions. In full sun it will develop clear red fall foliage. Many excellent cultivars available, e.g., 'October Glory', 'Red Sunset' and Freeman hybrids.

Acer tataricum **Tatarian Maple**
Zone 3-7 20' x equal spread

Adaptable to a wide range of conditions, drought tolerant once established, sun/light shade. Many attributes similar to *A. ginnala.*

Acer triflorum **Three-flower Maple**
Zone 5-7 20-30' x equal spread

Moist, acid soils, full sun/partial shade. A good small tree with exfoliating bark, the trifoliate leaves develop a warm yellow to red color in the fall. Good for many different landscape uses.

Acer truncatum **Purpleblow Maple**
Zone 4-8 20-25' x less spread

Small, rounded, relatively hardy tree. Potentially drought and urban tolerant. Young purple leaves change to green, yellow-orange-red fall color.

Aesculus parviflora
Bottlebrush Buckeye
Zone 4-8
8-12' x 8-15'

Prefers moist, well-drained soils with high organic matter, drought intolerant, pH adaptable, prefers acid, sun/shade. Large white flowers in June-July. Overall growth habit is clumping as it suckers readily from the base. Good yellow fall color. Native.

BOTTLEBRUSH BUCKEYE
Aesculus parviflora

Aesculus pavia **Red Buckeye**
Zone 5-8 10-20' x equal spread

Prefers moist, well-drained soils, full sun/light shade, red flowers in 4-8" panicles in mid spring. Variability in flower color in the species, 'Atrosanguinea' has consistent deep red flowers. Native.

Alnus incana **White Alder**
Alnus rugosa **Speckled Alder**
Zone 3-6 40-60' x 20-40'

Prefers moist to wet soils, full sun/light shade, pH tolerant, does well on infertile sites as it fixes nitrogen. Several cultivars of *A. incana* available, including 'Aurea' with yellow leaves and 'Laciniata', a bright green cut-leaf form. Especially useful for wet or naturalized areas although may be somewhat invasive in the northeast. *A. rugosa* is a native shrub that reaches 15-20' and is useful for wetland plantings.

Amelanchier arborea **Serviceberry**
Amelanchier canadensis,
Amelanchier laevis
Zone 4-9 15-25' x variable spread

Prefers moist, acid soils, good for wet and/or naturalized areas; not particularly stress tolerant. Sun/shade. Newer cultivars are reported to be less subject to pest and disease pressure. Generally multi-stemmed with white flowers in early spring followed by purple-black berries in summer. Good fall foliage. Native.

SERVICEBERRY
Amelanchier arborea

Amorpha fruticosa **Indigobush Amorpha**
Amorpha canescens **Leadplant Amorpha**
Zone 4-9 6-20' x 5-15' spread

Deciduous shrub with leggy growth habit. Transplants easily. Does well in poor, sandy, dry soils. pH adaptable. Full sun. Possibly salt tolerant. Cut back in late winter. Spreads easily. Purple-blue flowers. *A. canescens* smaller, hardier but treated as a herbaceous perennial.

Andromeda polifolia **Bog Rosemary**
Zone 2-6 1-2' x 2-3'

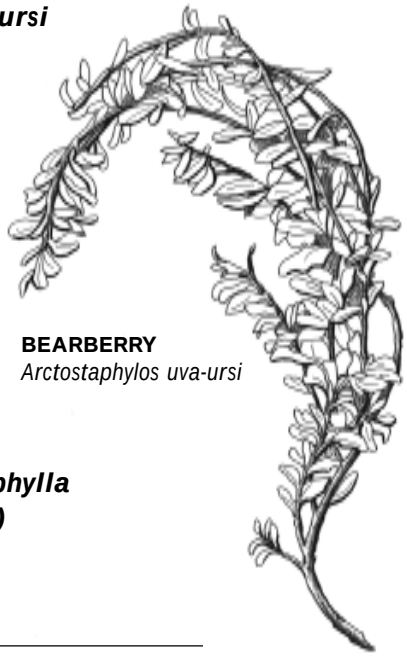
Slow growing, evergreen shrub. Foliage leathery dark green and flowers white tinged pink, 1/4" long and urn shaped. Prefers peaty or sandy, moist, cool soil. Full sun/light shade. Good for naturalizing. Native.

Aralia spinosa **Hercules-Club**
Zone 4-9 10-20'

Tolerant of adverse soil conditions, full sun/light shade, pH tolerant. Spiny stems and pinnately compound leaves that reach 64" in length. Careful siting required as it suckers from roots. Native to Pennsylvania and south.

Arctostaphylos uva-ursi
Bearberry
Zone 2-5
6-12" x 2-4'

Does best in poor, dry, sandy soils, difficult to transplant, full sun, acidic conditions. Salt tolerant. Does well in containers. Native.



BEARBERRY
Arctostaphylos uva-ursi

Aristolochia macrophylla
(*formerly *A. durior)
Dutchman's Pipe
Zone 4-8
20-30'

Vigorous climbing vine with large leaves and unusual yellow-green and purple flowers. Full sun to partial shade. Requires moist soils. Native to Southeast.

Aronia arbutifolia **Red Chokeberry**
Aronia melanocarpa **Black Chokeberry**
Zone 4-9 6-10' x 3-5', suckering

Adaptable; tolerates wet or dry soils. Best fruit production in full sun. Good for massing or naturalizing. White flower clusters in spring, red berries persisting into winter. *A. melanocarpa* is a smaller shrub with black fruit. Both native.

Azalea (see *Rhododendron*)

Baccharis halimifolia **Groundsel-bush**
Zone 5-9 5-12' x equal spread

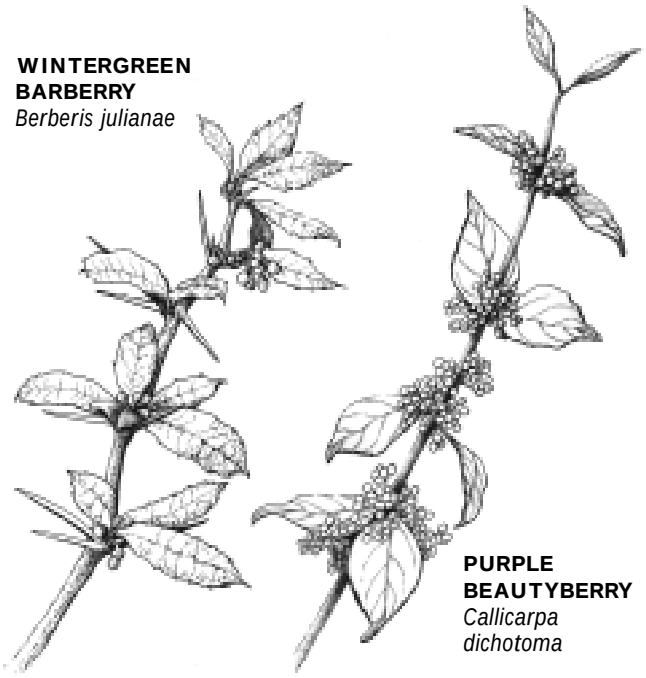
Unusual, native, semi-evergreen shrub. Does well in poor soil. Salt tolerant. Good filler plant for areas with poor soil.

Berberis* x *chenaultii **Chenault Barberry**
Zone 5-8 3-4' x slightly larger spread

Low growing, dense, evergreen shrub. Dark green leaves turn rich bronze-red in fall. Prefers moist, well-drained, slightly acid soil. Sun to part shade.

Berberis julianae **Wintergreen Barberry**
Zone 6-8 6-8' x 8-10'

Tolerant of most soil conditions except wet. Full sun/light shade. Attractive yellow flowers and dark green spiny evergreen leaves. May show winter damage in exposed, windy locations; considered the hardiest of the evergreen barberries. Best left unpruned; makes an effective thorny hedge.



WINTERGREEN BARBERRY
Berberis julianae

PURPLE BEAUTYBERRY
Callicarpa dichotoma

Berberis* x *mentorensis **Mentor Barberry**
Zone 5-8 5' x 5-7'

Culture similar to *B. julianae;* stiff, upright growth habit, dark green leathery foliage, semi-evergreen. Best left unpruned. Excellent hedge or barrier shrub.

Berberis verruculosa **Warty Barberry**
Zone 6-8 3-6' x equal spread

Forms a dense evergreen shrub. Leaves dark green above, whitish underneath turning purple in winter. Good compact growth, useful as hedging material, may show winter damage in exposed, windy locations. Flowers are golden yellow, fruit black.

Betula alleghaniensis **Yellow Birch**
Betula lenta **Sweet Birch**
Zone 3-7 60-75' and 40-55' x 35-45'

Prefers rich, moist, slightly acid, well-drained soils. Resistant to bronze birch borer. Golden yellow fall color. Native.

Betula nigra **River Birch**
Zone 4-9 40-70' x 40-60'

Less susceptible to leaf miner than Paper birch, resistant to bronze birch borer which kills Paper birch in Southern RI; prefers moist well-drained soils but tolerates dry conditions once established. The Heritage birch, 'Cully', is a superior cultivar with exfoliating bark that is a lighter salmon color than the species. It is a rapid grower once established in the landscape. Native.

Buxus microphylla **Boxwood**
Buxus sempervirens
Zone 5-6 to 8 Varies with cultivar

Buxus species prefer loamy, well-drained soils. Root systems are near surface and should not be disturbed. Full sun to partial shade.

Callicarpa dichotoma **Purple Beautyberry**
Zone 5-8 3-4' x 6'

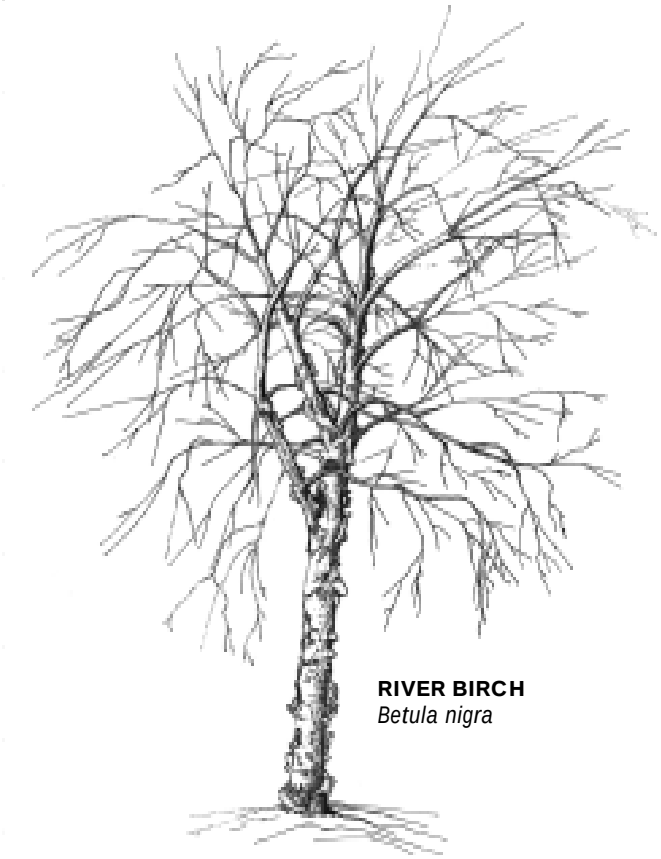
Moist, well-drained soils, full sun for best fruiting; should be pruned hard in late winter for best fruiting effects. Produces abundant purple berries on arching branches in the fall.

Calycanthus floridus **Carolina Allspice**
Zone 5-9 6-9' x 6-12'

Adaptable to many soils, pH adaptable, sun/shade. Produces fragrant maroon flowers in late spring. If possible, check fragrance of blooming plants before buying.

Campsis radicans **Trumpet Vine, Trumpet Creeper**
Zone 4-9 Climbing 30-40' high by aerial rootlets

Vigorous, deciduous, clinging vine. Grows very fast and needs frequent pruning. Adaptable and salt tolerant. Rich orange and scarlet, trumpet shaped flowers in mid-summer. Native.



RIVER BIRCH
Betula nigra

Caragana arborescens **Siberian Peashrub**
Zone 2-7 15-20' x 12-18'

Very easy to grow. Tolerates cold, salt, poor soil, drought, alkalinity, wind. Good for hedge, screen or windbreak. Bright yellow flowers in mid-May.

Carpinus betulus **European Hornbeam**
Zone 4-7 40-60' x 30-40'

Tolerates wide range of soil conditions, prefers moist, well-drained soils but moderately drought tolerant once established, full sun/light shade, tolerates shearing. A good landscape tree with smooth gray bark, is often used as hedging or screen.

Carpinus caroliniana **American Hornbeam**
Zone 4-9 20-30' x equal spread

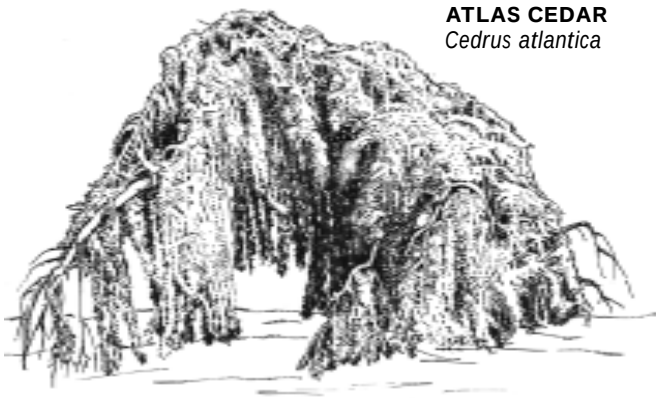
Moist, acid soils, tolerates drier sites, partial-deep shade. Smooth gray, beech-like bark, useful as an under-story tree.

Ceanothus americanus **New Jersey Tea**
Ceanothus ovatus **Inland Ceanothus**
Zone 4-8 3-4' x 3-5'

Low, dense shrub with dark green leaves and white flowers in July. Full sun to shade. Tolerates dry soil. *C. ovatus* is denser than *C. americanus,* and has fruit turning bright red in summer. Native.

Cedrus atlantica **Atlas Cedar**
Cedrus libani **Cedar of Lebanon**
Zone 6-9 40-60' x 30-40'

Large evergreen trees with spreading branches. Prefers moist, well-drained soil. Tolerates acid and alkaline soils and, once established, heat and drought. Sun/part shade. Needs shelter from wind. *C. libani* is hardy to zone 5.



ATLAS CEDAR
Cedrus atlantica

Cephalotaxus harringtonia **Japanese Plum Yew**
Zone 5-9 5-30' x upright/spreading

Evergreen. Moist, well-drained soil, tolerates drought once established. Shade tolerant. Deer resistant substitute for yew, juniper and holly.

Cercidiphyllum japonicum **Katsuratree**
Zone 4-8 40-60' x 20-30'

Moist, well-drained soil preferred, may need supplemental water during establishment. Tends to develop multi-stemmed character if not trained to a single trunk. Attractive, heart-shaped leaves emerge red, turn blue-green and change to a beautiful golden to apricot fall color.

Cercis canadensis **Eastern Redbud**
Zone 4-9 20-30' x 25-35'

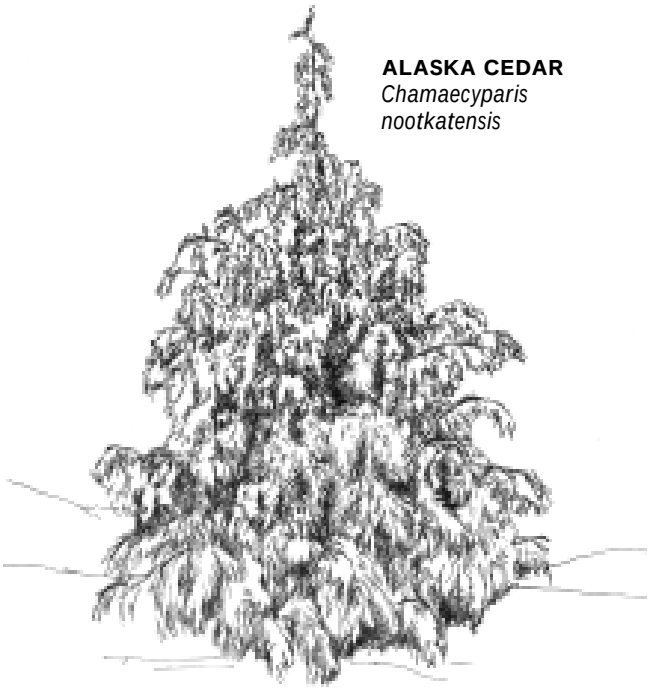
Very handsome small tree blooming purple along branches and trunk. Heart shaped leaves turn yellow in fall. Alternative to *Cornus florida.*

Chaenomeles japonica **Japanese Flowering Quince**
Zone 5-8 3' x wide spreading

Flowers orange-red or scarlet on year-old wood. Densely branched. Fruit is greenish yellow and fragrant. Most attractive in flower.

Chamaecyparis nootkatensis **Alaska-cedar**
Zone 4-7 30-45' x narrow

Moist, well-drained soil, humid atmosphere, sun. 'Pendula' is a graceful weeping form with dark green foliage.



ALASKA CEDAR
Chamaecyparis nootkatensis

Chamaecyparis obtusa **Hinoki Falsecypress**
Zone 5-8 Variable

Moist, well-drained soil, full sun, some protection from wind. Several attractive cultivars available.

Chamaecyparis pisifera **Sawara Falsecypress**
Zone 4-8 Variable

Moist, well-drained, acid soils, full sun, tolerates wind. One of the toughest evergreens for seaside and street side locations. Diverse cultivars available.

Chamaecyparis thyoides **Atlantic Whitecedar**
Zone 3-8 40-50' x 10-20'

Moist soils, full sun; found in wet and boggy areas as a native plant.

Chamaedaphne calyculata **Leatherleaf**
Zone 3-6 2-5'

Native evergreen shrub with sparse, open habit, blueberry-like flowers. Good for naturalizing in semi-shaded, boggy, wet areas.

Chionanthus retusus **Chinese Fringetree**
Zone 5-8 15-25' x equal spread

Moist, well-drained soil, full sun/part shade, tolerates air pollution. Tree form with gray-brown bark, white feathery flowers in June.

WHITE FRINGETREE
Chionanthus virginicus

Chionanthus virginicus **White Fringetree**
Zone 4-9 12' x 20'

Very adaptable to soil types, prefers moist, well-drained, full sun. Grows very wide, careful siting is important. Fragrant creamy-white flowers in June followed by blue-black fruit in September; dioecious. Fruit attractive to birds.

Cladrastis kentukea (lutea) **American Yellowwood**
Zone 4-8 30-50' x 40'

Well-drained soils, alkaline conditions, tolerates acidic soils, full sun. Sensitive to drought-heat and compacted soils. Do not prune in spring.

***Clematis* species** **Clematis**
Zone 4-8 5-6' to 18' on appropriate structure

Fast growing vines, excellent for trellises, fences, rock walls, etc. Prefers some shade and higher pH soils.

Clethra alnifolia
Sweet Pepperbush
Zone 4-9
4-8' x 4-6'

Prefers moist, acidic soil supplemented with organic matter, light shade/sun, salt tolerant. Fragrant flowers in late summer; pink flowered and dwarf cultivars are also available. Blooms best in full sun. Native.

SWEET PEPPERBUSH
Clethra alnifolia

Clethra barbinervis
Japanese Clethra
Zone 5-7
10-20' x 8-10'

Prefers a soil supplemented with organic matter, considered drought and heat intolerant, full sun/part shade. Attractive, exfoliating bark, fragrant, white flowers in drooping panicles in late summer, maroon fall color.

Comptonia peregrina **Sweetfern**
Zone 2-6 2-4' x 4-8'

Well adapted to poor, dry infertile soils, full sun/light shade. Difficult to transplant, best when container grown. Good for naturalizing or on embankments.

Cornus alternifolia **Pagoda Dogwood**
Zone 3-7 15-25' x equal spread

Low branched tree or large shrub with horizontal tiered branching. Plant in part shade although can tolerate sun. Needs moist, cool, acidic soil. Yellowish-white fragrant flowers in May to early June. Great for naturalizing.

KOUSA DOGWOOD
Cornus kousa

Cornus kousa **Kousa Dogwood**
Zone 5-8 20-30' x equal spread

Performs well in moist, acidic soils, does well in sandy soils supplied with organic matter, prefers sun. More drought tolerant and cold hardy than flowering dogwood, resistant to dogwood anthracnose. Blooms after the foliage has emerged in early June, creamy white bracts persist for several weeks; large red gumball fruit effective in the fall. Exfoliating bark on mature specimens. Seeds readily. *Cornus* x 'Stellar' series or Hybrid Dogwoods are interspecific hybrids developed at Rutgers University and appear to be resistant to dogwood borer and dogwood anthracnose. Bloom times between *C. florida* and *C. kousa.* Of the six cultivars, one is pink and the rest are creamy white. Fruitless.

Cornus mas **Corneliancherry Dogwood**
Cornus officinalis **Japanese Cornel**
Zone 4-7 20-25' x 15-20'

Large multi-stemmed shrub or small tree with exfoliating bark. Yellow flowers in March. Red fruit. *C. officinalis* similar with showy exfoliating bark.

Cornus racemosa **Gray Dogwood**
Zone 4-8 10-15' x equal spread

Adaptable to wet or dry soils, full sun to deep shade. Spreads by root suckers; adequate space needed. Best for naturalized areas. Most drought tolerant of the native shrub dogwoods.

Corylopsis glabrescens **Fragrant Winterhazel**
Corylopsis spicata **Spike Winterhazel**
Zone 5-8 8-15' x similar spread

Dense shrub with fragrant, pale yellow flowers in April before leaves develop. Very nice plant for early spring color and fragrance. *C. spicata* is smaller but also beautiful in flower.

Corylus americana **American Filbert**
Corylus avellana **European Filbert**
Corylus cornuta **Beaked Filbert**
Zone 4-8 4-30" x similar spread

Multi-stemmed shrub is pH adaptable. Grow in full sun to light shade. Good for naturalizing. *C. avellana* can be a small tree but usually forms a thicket. Cultivar 'Contorta' most commonly grown, grafted plants tend to sucker. Obtain plants raised from cuttings. *C. cornuta* has interesting beaked fruits.

Corylus colurna **Turkish Filbert**
Zone 4-7 40-50' x 12-15'

Adaptable to adverse conditions, adaptable to pH, very drought tolerant once established. Broadly pyramidal in habit, useful as a street tree.

Cotinus coggygria **Common Smoketree**
Cotinus obovatus **American Smoketree**
Zone 4-8 10-15' x10-15'

Prefers well-drained soil but will tolerate a wide range of conditions, sun/light shade. Small five-petaled flowers are surrounded by 6-8" pinkish hairs which impart a "smokey" appearance from late June-August. Several forms are available with differing foliage colors. *C. obovatus* adaptable to a wide range of soils, tolerates drought and alkaline soils. Best growth in full sun. Somewhat longer than *C. coggygria,* outstanding fall foliage.

Cotoneaster adpressus **Creeping Cotoneaster**
Zone 5-7 1-1.5' x 4-6'

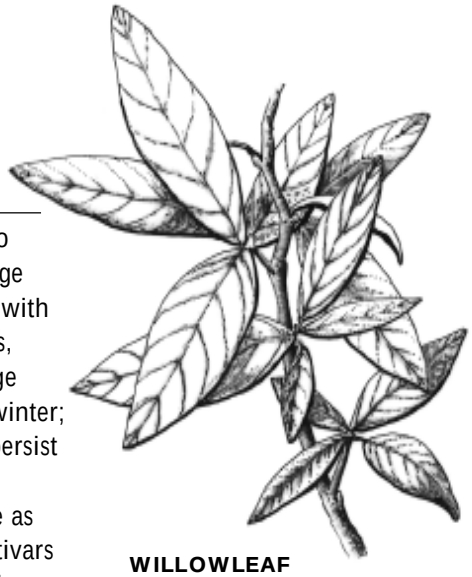
Moist, well-drained soils, full sun, drought tolerant once established, pH tolerant and adaptable to seaside conditions. Compact ground cover with glossy green leaves, white blossoms in May, red fruits effective in fall and winter. Subject to mites under hot dry conditions.

Cotoneaster divaricatus **Spreading Cotoneaster**
Zone 4-7 5-6' x equal spread

Culture similar to *C. adpressus;* multi-stemmed shrub with arching branches, dark green foliage with yellow to red fall color; white flowers in May with red fruit effective in the fall and winter. Less subject to pests than others in this genus.

Cotoneaster salicifolius **Willowleaf Cotoneaster**
Zone 6-8
10-15' x 10'

Culture similar to *C. adpressus;* large evergreen shrub with arching branches, dark green foliage turns purple in winter; bright red fruit persist through winter. Usually available as low growing cultivars such as 'Emerald Carpet', 'Repens' and 'Scarlet Leader'.



WILLOWLEAF COTONEASTER
Cotoneaster salicifolius

Cratageus viridis **'Winter King'** **Green Hawthorn**
Zone 4-7 20-25' x equal spread

Tolerates poor soil conditions and windy sites. Less susceptible to pests than other hawthorns. Attractive bark and showy red fruit are good winter characteristics.

Cryptomeria japonica **Japanese Cedar**
Zone 5-8 5' x 20'

Graceful evergreen. Prefers sun/light shade. Easy to grow in rich, acid, moist soil. Foliage turns bronze in winter. Cultivars retaining green winter color are preferred.

Daphne cneorum **Rose Daphne**
Zone 4-7 6-12" x 2' spread

Daphne* x *burkwoodii **Burkwood Daphne**
Zone 4-7 3-4' x equal spread

Daphne caucasica **Caucasian Daphne**
Zone 5-7 4-5' x equal spread

A low, trailing evergreen shrub forms loose masses and groundcover. Slow growing in well-drained, moist, neutral pH soil. Prefers light-medium shade. Difficult to transplant. *D. cneorum's* bright rosy-pink, fragrant flowers open in April or May and again in late summer. *D.* x *burkwoodii* is a cross between *D. cneorum* and *D. caucasica.* Flowers are fragrant and white with a pink tinge. *D. caucasica* is deciduous and produces very fragrant, long-season white flowers and black or red fruit.

Davidia involucrata **Dove-tree**
Zone 6 to 8 20-40' x variable

Handsome specimen tree. Slow growing and late to flower. Striking large, creamy white bracts look like handkerchiefs fluttering in the breeze. Attractive orange-brown exfoliating bark. Prefers moist, well-drained soils.

Deutzia* x *lemoinei **Lemoine Deutzia**
Zone 4-8 5-7' x similar spread

Dense shrub with pure white flowers in late May and good yellow fall color. One of the hardiest deutzias.

Deutzia gracilis **Slender Deutzia**
Zone 4-8 2-4' x 3-4'

Tolerates most soil conditions. Prefers well-drained soil, full sun/light shade. White flowers in late May; 'Nikko' is a compact cultivar useful as a groundcover.

Deutzia scabra **Fuzzy Deutzia**
Zone 5-7 6-10' x 4-8'

Average garden soil, full sun, pH tolerant. White flowers in late May. Several good cultivars available.

Diervilla sessilifolia **Southern Bush Honeysuckle**
Zone 4-8 3-5' x 3-5'

Very adaptable to soil conditions, drought and wind tolerant once established, full sun/light shade. Spreads by underground stems, will form a large mass and therefore useful as a ground cover in rough areas. Attractive yellow flowers in midsummer.

Dirca palustris **Leatherwood**
Zone 4-9 3-6' x similar spread

Dense shrub thrives in moist to wet shade areas. Pale yellow flowers in March or April. Native.

Disanthus cercidifolius
Zone 5-7 6-10' x similar spread

Magnificent, but rare, shrub with small heart shaped leaves turning a rich red purple in fall. Purple flowers in October.

Eleutherococcus sieboldianus **Fiveleaf Aralia**
Zone 4-8 8-10' x 8-10'

Easily transplanted, withstands adverse conditions, tolerates dry soils, clay-sand-acid soils and urban conditions. Sun/shade. Suckers readily; may be maintenance problem if not sited correctly and allowed ample room, thorny.

Enkianthus campanulatus **Redvein Enkianthus**
Zone 4-7 12-15' x 6-8'

Requires moist, acid soil supplemented with organic matter, culture similar to rhododendron, sun/light shade. Bright green, whorled and bell-shaped creamy, red veined, lobed flowers in late May-early June. Bright orange-scarlet fall foliage.

REDVEIN ENKIANTHUS
Enkianthus campanulatus

Eucommia ulmoides **Hardy Rubber Tree**
Zone 4-7 40-60' x equal spread

Excellent shade tree. Drought tolerant, full sun, pH adaptable.

***Evodia daniellii* (see *Tetradium daniellii*)**

Exochorda racemosa **Common Pearlbush**
Zone 4-8 10-15' x equal spread

Prefers well-drained, acid soils, full sun/light shade, drought and heat tolerant once established. Flower buds arranged like pearls along the stem, opening into five-petaled, white flowers in April.

Fagus grandifolia **American Beech**
Fagus sylvatica **European Beech**
Zone 4-7 50-60' x 50-100'

European beech is more tolerant of various soil conditions than American beech which likes acidic, organic soils. Both prefer full sun. Shallow rooted, big for the average residential landscape but excellent for parks, golf courses, other open spaces; needs room to develop into a mature specimen. Many fine cultivars of European beech available in green and purple leaf forms, weeping, cutleaf, etc.

Forsythia* x *intermedia **Border Forsythia**
Forsythia suspensa **Weeping Forsythia**
Zone 6-8 8-10' x 10-12'

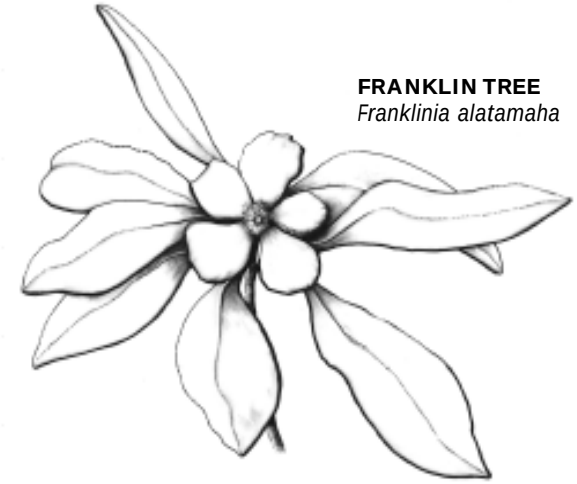
Forsythia species valuable for early spring flowers. pH adaptable and tolerant of urban environments. Plant in full sun for best flowering. Particularly nice in mass plantings or with other spring flowering shrubs or bulbs. Flower buds killed in cold winters.

Fothergilla gardenii **Dwarf Fothergilla**
Fothergilla major **Large Fothergilla**
Zone 4-8 2-3' (6-10') x equal spread

Fragrant white bottle-brush flowers in April and May before the leaves develop. Leaves dark blue-green turning florescent yellow, orange and red in the fall. Prefers acid, moist, organic soil in full sun to partial shade. *F. major* not particularly drought tolerant.

LARGE FOTHERGILLA
Fothergilla major

EUROPEAN BEECH
Fagus sylvatica



FRANKLIN TREE
Franklinia alatamaha

Franklinia alatamaha **Franklin Tree**
Zone 5-8 10-20' x 6-15'

Large, fragrant, white flowers in mid-September. Prefers acid, rich organic, moist, well-drained soils in sun/light shade. Good drainage is crucial for tree to thrive. Leaves orange-mahogany red in fall.

Fraxinus pennsylvanica **Green Ash**
Zone 3-9 50-60' x 25-30'

Tolerates variable soils, salt, high pH, wind. Very adaptable. Yellow fall color. 'Marshall's Seedless' a preferred male cultivar.

Ginkgo biloba
Ginkgo
Maidenhair Tree
Zone 4-8
50-80' x 30-40'

Adaptable to variable soil conditions and high pH. Tolerates air pollution, salt, and heat. Male cultivars preferred as decomposing fruit on female trees in the fall are malodorous. Attractive leaves turn clear yellow in fall.

GINKGO TREE
Ginkgo biloba

Gymnocladus dioicus **Kentucky Coffeetree**
Zone 3-8 60-75' x 40-50'

Adaptable to various soil conditions but prefers deep, rich loam, full sun, tolerates drought, high pH and urban conditions; a large tree for park-like surroundings. Slow to establish.

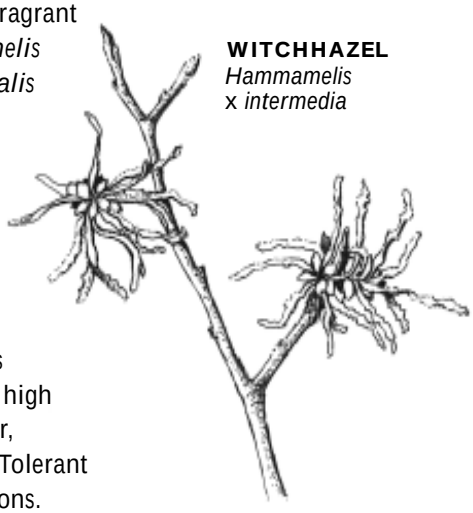
Halesia diptera **Two-winged Silverbell**
Halesia monticola **Mountain Silverbell**
Halesia tetraptera **Carolina Silverbell**
(formerly *H. carolina*)
Zone 4-8 30-40' x 20-35'

Moist, acid soils, sun/light shade. White, bell-shaped flowers in early spring before foliage emerges. *H. tetraptera* native. *H. diptera* is multi-stemmed, rounded tree with pretty, white, bell-shaped flowers. *H. monticola* much larger (60-80') with larger size fruit and flowers than *H. tetraptera* but otherwise similar.

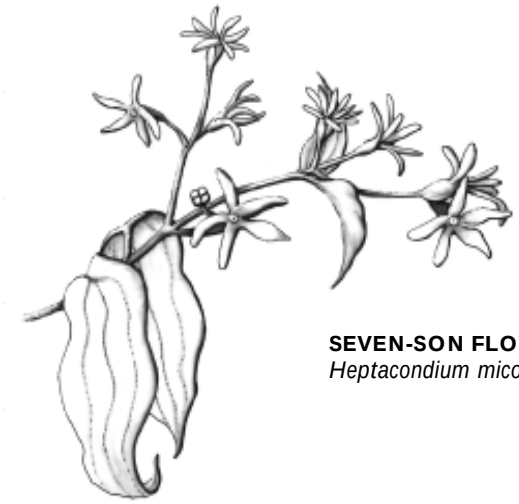
CAROLINA SILVERBELL
Halesia tetraptera

Hammamelis* x *intermedia **Witchhazel**
Hammamelis mollis **Chinese Witchhazel**
Hammamelis vernalis **Vernal Witchhazel**
Hammamelis virginiana **Common Witchhazel**
Zone 5-8 15-20'

Witchhazels are deciduous understory plants blooming in fall *(H. virginiana)* or late winter. Prefer moist, acidic soils high in organic matter, sun or part shade. Flower colors range from yellow to red. *H.* x *intermedia* represents a group of hybrids between *H. japonica* x *H. mollis.* Upright spreading plants bloom from late January into mid-March. 'Arnold Promise', 'Jelena' and 'Pallida' are noteworthy cultivars. *H. mollis* has yellow, fragrant flowers in February to March. Most fragrant of the *Hammamelis* species, *H. vernalis* has excellent golden yellow fall color. pH adaptable. *H. virginiana* is a native shrub and generally prefers moist, acid soils high in organic matter, sun/part shade. Tolerant of urban conditions.



WITCHHAZEL
Hammamelis
x *intermedia*



SEVEN-SON FLOWER
Heptacondium miconioides

Heptacodium miconioides **Seven-Son Flower**
Zone 5-8 10-20' x 10-15'

Prefers moist soils but is adaptable. Full sun to part shade. Creamy white fragrant flowers from September to October. Very popular with bees. After flowering, the calyces turn red and are very striking.

Hovenia dulcis **Japanese Raisintree**
Zone 5-7 30' x 20'

Adaptable to various soil conditions. Prefers good drainage and full sun. Fragrant white flowers in summer.

Hydrangea anomala **Climbing Hydrangea**
subspecies *petiolaris*
Zone 4-7 Climbing 60-80'

Lovely clinging vine with white flowers in late June to early July. Full sun or shade and moist soils. Excellent for massive effect on brick or stone walls. Slow to establish but then vigorous.

Hydrangea arborescens **Smooth Hydrangea**
Zone 4-9 3-5' x greater spread

Adaptable, prefers well-drained, moist soil, partial shade. Will tolerate full sun if ample moisture is available. 'Annabelle' is an improved selection.

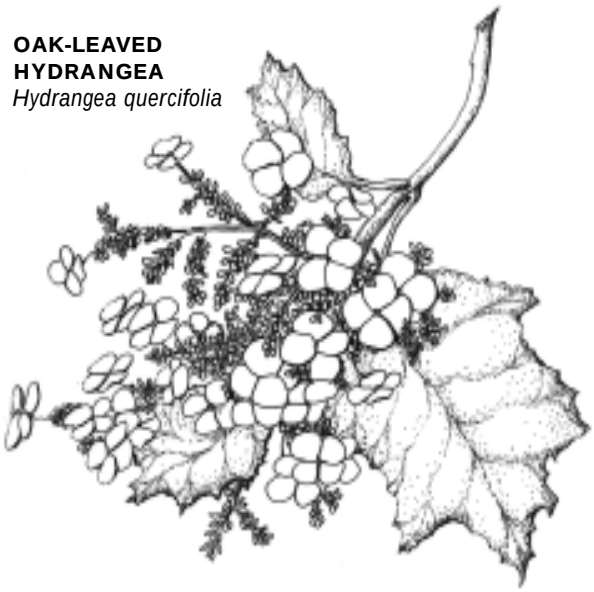
Hydrangea macrophylla **Bigleaf Hydrangea**
Zone 6-9 3-6' x equal spread

Prefers a moist soil supplemented with organic matter, tolerates coastal conditions, sun/light shade. Pink and blue cultivars available.

Hydrangea paniculata **Panicle Hydrangea**
Zone 3-8 10-20' x equal spread

Prefers loamy soil but is adaptable, sun/part shade, urban tolerant. 'Grandiflora' (PeeGee Hydrangea) and 'Tardiva' are improved selections. Extremely long flowering period as the dry flowers persist well into the fall. Potentially invasive.

OAK-LEAVED HYDRANGEA
Hydrangea quercifolia



Hydrangea quercifolia **Oak-leaved Hydrangea**
Zone 5-9 4-6' x equal or wider spread

Moist, fertile, well-drained soils, sun/part shade, prefers cool, moist root environment. 'Snow Queen' is an improved selection. Excellent fall color.

Hypericum **species**
St. Johnswort
Zone 4-8
1-4' x equal spread

Dense shrubs often treated as a perennial. Adaptable to dry, high pH soils. Beautiful yellow summer flowers. *Hypericum* 'Hidcote' and *H. kalmianum* are notable varieties.

ST. JOHNSWORT
Hypericum species

Ilex crenata **Japanese Holly**
Zone 5-7 Varies with cultivar

Small-leaved evergreen shrub prefers moist, well-drained soil, full sun/part shade, adaptable.

Ilex glabra
Inkberry Holly
Zone 5-9
6-8' x 8-10'

Small-leaved deciduous shrub prefers moist to wet soils, shade tolerant. 'Compacta' is a better-shaped plant than the species. Native.

INKBERRY HOLLY
Ilex glabra

***Ilex* x *meserveae* hybrids**
Blue Holly
Zone 5-8
Variable spread

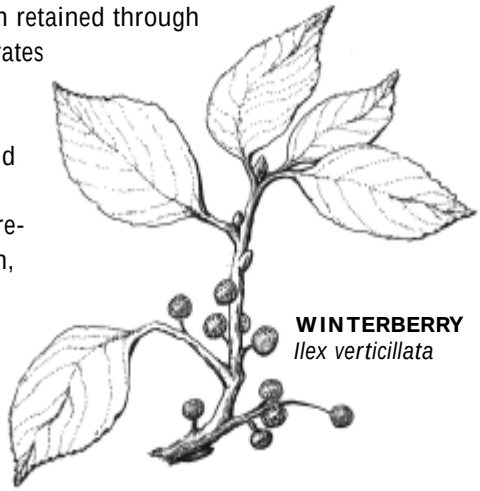
Evergreen shrub prefers moist, well-drained soil supplemented with organic matter, acid conditions, sun/part shade. Dark blue-green leaves, bright red berries. Well adapted to New England. Many cultivars favored by deer.

Ilex pedunculosa **Longstalk Holly**
Zone 5-8 15-25' x 15'

Prefers moist, acid soil, sun/part shade. Leaves resemble Mountain Laurel, bright red berries on long stalks.

Ilex serrata **Finetooth Holly**
Ilex verticillata **Winterberry**
Zone 3-9 6-10' x equal spread

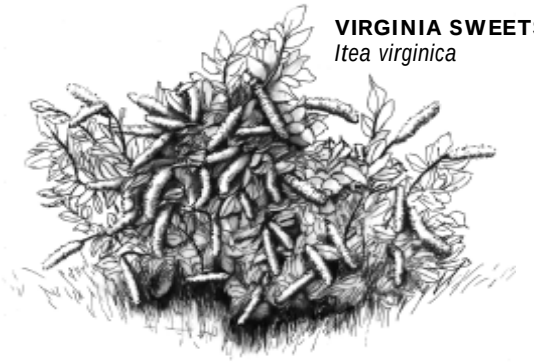
Deciduous shrubs. Prefer moist, acid soils supplemented with organic matter, does well under wet conditions, also in lighter soils but is considered drought intolerant, sun/light shade. Plants are dioecious, both sexes required for pollination and berry production. Many cultivars available; fruit colors up after the first frost and is often retained through the winter. Tolerates heavy pruning; fruits on new wood. The hybrid 'Sparkleberry', a National Arboretum introduction, is noted for its persistent berries.



WINTERBERRY
Ilex verticillata

Itea virginica **Virginia Sweetspire**
Zone 5-9 3-5' x 6'

Moist, fertile soils, tolerates wet or dry conditions, pH adaptable, full sun/part shade. Cultivar 'Henry's Garnet' sports white flowers in upright spikes in June-July; foliage reddish-purple color in fall.



VIRGINIA SWEETSPIRE
Itea virginica

Juniperus chinensis **Chinese Juniper**
Zone 3-9 Varies with cultivar

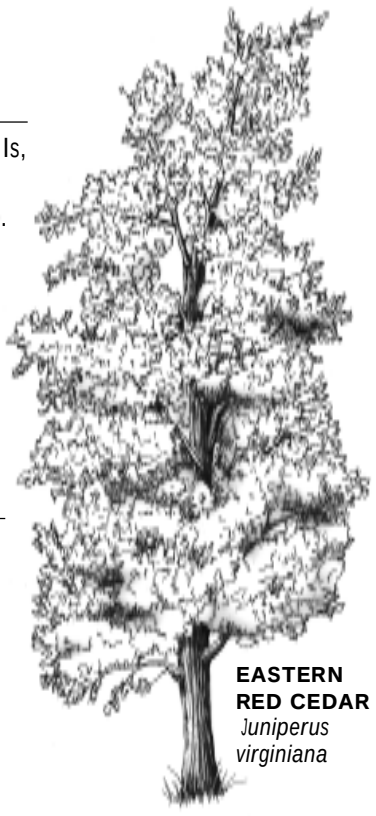
Moist, well-drained soils, pH adaptable, sun. Salt, drought and wind tolerant. Useful as a groundcover, shrub, screen, etc., depending on the cultivar. Some cultivars susceptible to blights, which can cause serious dieback. The following cultivars are reported to be resistant to one or two of the blights: 'Foemina' (P), 'Iowa' (P), 'Keteleeri' (P), 'Pfitzeriana-aurea' (P+K), 'Robusta Green' (P), var. *sargentii* (P+K), 'Gold Coast' (K).

Juniperus conferta
Shore Juniper
Zone 6-9
1.5' x spreading

Adaptable to poor, dry soils, full sun, salt tolerant, good for coastal locations. Low-growing groundcover, intolerant of wet soils.

Juniperus virginiana
Eastern Red Cedar
Zone 3-9
15-30' x 8-10'

Adaptable to poor, droughty soils, pH adaptable, full sun, salt tolerant. Alternate host for cedar-apple rust. Tough native plant for screening, naturalizing, coastal planting.



EASTERN RED CEDAR
Juniperus virginiana

Kalmia latifolia **Mountain-Laurel**
Zone 4-9 7-15' x similar spread

Requires acid, moist soil supplemented with organic matter, good drainage, full sun to shade. A good native plant if sited correctly. Many new cultivars available; red and pink flowered forms need full sun to develop good flower color.

MOUNTAIN-LAUREL
Kalmia latifolia

Kalopanax septemlobus **Castor-aralia**
Zone 4-7 40-60' x equal spread

Moist soils, full sun. Tolerant of alkaline soil and long lived. Coarse textured plant provides tropical effect in the landscape.

Kerria japonica **Japanese Kerria**
Zone 4b-9 3-6' x 6-9'

Hearty, free-flowing shrub. Plant in full sun/part shade. 'Pleniflora' has double, golden yellow flowers and grows in an upright, lanky form. Best grown unpruned except thinning.

Koelreuteria paniculata **Goldenraintree**
Zone 5-9 30-40' x equal spread

Adaptable to a wide range of soils, tolerates drought, heat, wind, pH and air pollution. Yellow blossoms in mid-summer followed by lantern-like seed capsules in fall.

Kolkwitzia amabilis **Beautybush**
Zone 4-8 6-10' x 8'

Adaptable to a variety of soil conditions; prefers moist, well-drained soils and full sun. Usually requires annual pruning of older canes to retain form and prevent legginess, or cut back to ground.

Larix kaempferi **Japanese Larch**
Larix laricina **Eastern Larch**
Zone 4-7 70-90' x 25-40'

Prefers moist, well-drained, acid soils. Will not tolerate heat, shade or pollution. *L. laricina* only grows to 40-80', less heat tolerant.

Ledum groenlandicum **Labrador Tea**
Zone 2-5 2-4' x equal spread

Dwarf evergreen shrub forms a rounded mass. Prefers moist, sandy, peaty soils in sun to part shade. Transplants easily. Pure white flowers in May-June.

***Leucothoe* species** **Leucothoe**
Zone 5-8 2-6' x equal spread depending on species

Broadleaf, evergreen shrub that is good for naturalizing. Prefers moist, acid soil, partial to full shade.

LEUCOTHOE
Leucothoe species

Lindera benzoin **Spicebush**
Zone 4-9 6-12' x equal spread

Prefers acid, moist soils in full sun/partial shade. Small greenish-yellow flowers appear in early spring. Bright green leaves turn bright yellow in fall. Fruit bright red in late September to October.

Liquidambar styraciflua **American Sweetgum**
Zone 6-9 60-75' x 2-3 spread

Difficult to transplant and needs large area for root development. Beautiful, glossy green leaves with rich yellow-purple fall color. Messy fruit.

Liriodendron tulipifera **Tuliptree**
Zone 4-9 70-90' x 35-50'

Large tree. Full sun, pH adaptable. Prefers moist soils. Golden yellow fall color. Beautiful green-orange flowers do not appear until tree matures.

Lonicera sempervirens **Trumpet Honeysuckle**
Zone 4-9 Climbing 10-20'

Fast growing, twining vine. Orange-red to red to yellow flowers in early spring. Great for hummingbirds.

Maackia amurensis **Amur Maackia**
Zone 4-7 20-30' x equal spread

Very adaptable, full sun, pH and drought tolerant.

Magnolia acuminata **Cucumbertree Magnolia**
Zone 3-8 50-80' x equal spread

Prefers moist, well-drained acid soils, but performs well in calcareous soils also. Not tolerant of extreme drought or wetness, or air pollution. Native.

***Magnolia* species** **Magnolia**
Zone 5-8 15-40' x equal spread

Many species and cultivars available. Most prefer moist, well drained soil but can be tolerant of high pH. Sun/part shade. *M.* x *loebneri* particularly urban tolerant.

STAR MAGNOLIA
Magnolia kobus stellata

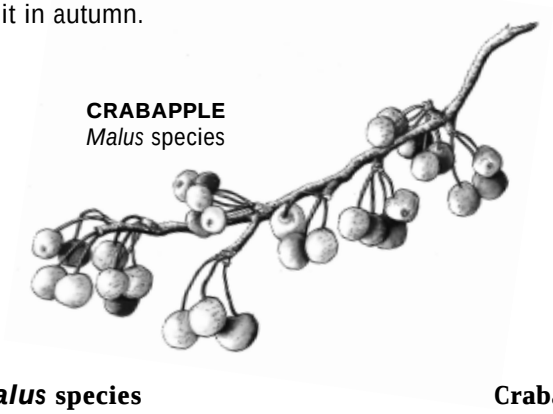
Magnolia ashei **Ashe Magnolia**
Magnolia denudata **Yulan Magnolia**
(formerly *M. heptapeta*)
Magnolia kobus **Kobus Magnolia**
Magnolia kobus stellata **Star Magnolia**
Magnolia* x *loebneri **Loebner Magnolia**
Magnolia* x *soulangiana **Saucer Magnolia**
Magnolia sieboldii **Oyama Magnolia**

Magnolia virginiana **Sweetbay Magnolia**
Zone 5-9 10-20' x equal spread

Does well in wet soils, considered drought intolerant, prefers acid soil, tolerates light shade. Semi-evergreen in protected areas. Native.

Mahonia aquifolium **Oregon Grapeholly**
Zone 5-7 3-6' x 3-5'

Does well in moist, acid soil. Prefers shade and protection from wind. Bright yellow flowers in April, attractive blue fruit in autumn.



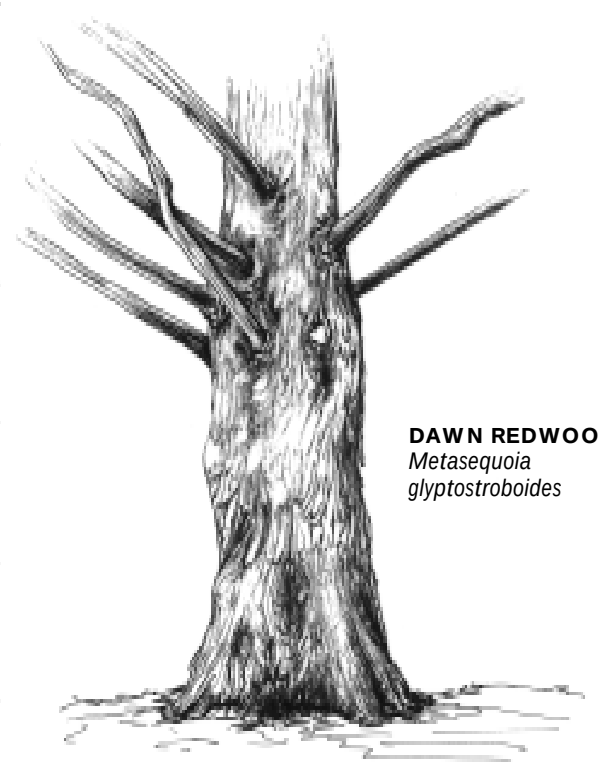
CRABAPPLE
Malus species

***Malus* species** **Crabapple**
Zone 4-7 Varies with cultivar

Quite adaptable to many soil types but prefers well-drained, acid conditions, full sun, salt tolerant. The best crabapples flower annually and are disease resistant. See Appendix 1 for a listing. Crabapples are particularly attractive to Japanese beetle adults, and may need protection when beetle populations are high.

Metasequoia glyptostroboides **Dawn Redwood**
Zone 5-8 70-100' x 25'

Deciduous conifer suitable for large areas. Attractive orange-brown fall color. Prefers deep, well-drained, slightly acid soils. Full sun.

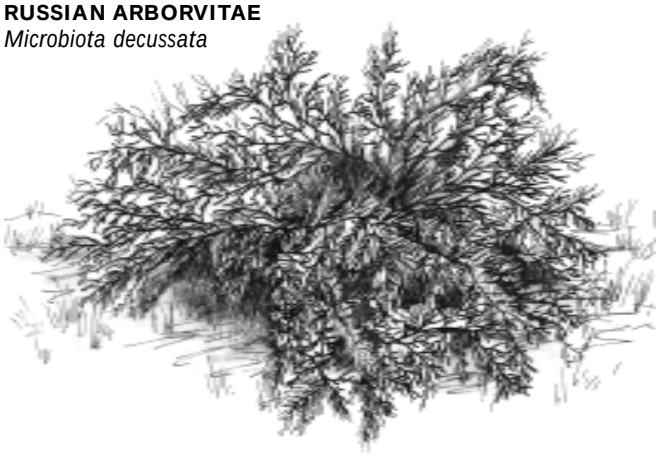


DAWN REDWOOD
Metasequoia glyptostroboides

Microbiota decussata **Russian Arborvitae**
Zone 3-7 12" x 10-12'

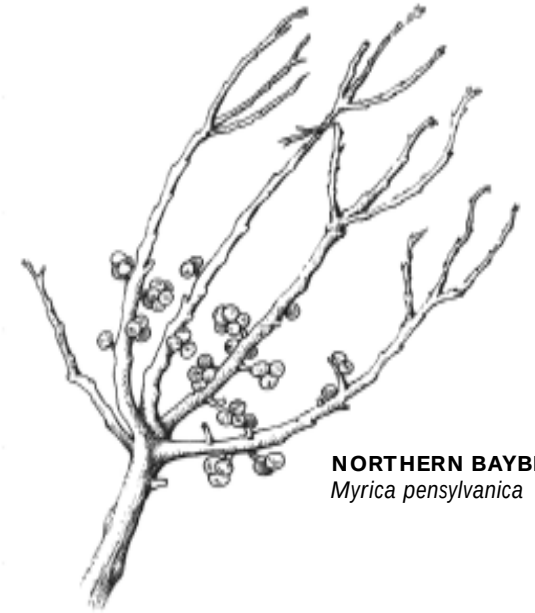
Low growing evergreen shrub, bright green summer foliage turning purple-brown in winter. Graceful branchlets arranged in flat sprays. Prefers moist soils, tolerant of shade, very cold hardy.

RUSSIAN ARBORVITAE
Microbiota decussata



Myrica pensylvanica **Northern Bayberry**
Zone 3-6 5-12' x equal spread

Does extremely well in poor sandy soils, may adapt to heavy soils, full sun/light shade. Salt tolerant. *Myrica gale,* or Sweetgale, is a low growing (2-4') deciduous shrub native to Rhode Island.



NORTHERN BAYBERRY
Myrica pensylvanica

Nemopanthus mucronatus **Mountain Holly**
Zone 4-6 6-10' x equal spread

Deciduous, native shrub. Good for naturalizing in cold climates. Tolerates moist soils. Bright red fruit in late summer.

Nyssa sylvatica **Black Tupelo, Sour Gum**
Zone 4-9 30-50' x 20-30'

Prefers moist, well-drained soils but tolerates wet soils, will also grow on upland areas. Full sun/light shade. Difficult to transplant. Excellent orange-scarlet fall foliage.

Ostrya virginiana **American Hop Hornbeam, Ironwood**
Zone 4-9 25-40' x 15-30'

Prefers moist, well-drained soils, slightly acid. Tolerates dry conditions once established, full sun/part shade. One of the most drought tolerant and salt resistant small trees. Difficult to transplant.

Oxydendrum arboreum **Sourwood**
Zone 5-9 25-30' x 20'

Prefers moist, well-drained soils, slightly acid, tolerates dry conditions, full sun/part shade. Drooping flower clusters in mid-summer; excellent burgundy fall foliage.

SOURWOOD
Oxydendrum arboreum

Pachysandra procumbens **Allegheny Pachysandra**
Pachysandra terminalis **Japanese Pachysandra**
Zone 4-8 6-12" high

One of the best evergreen ground covers for deep shade. Spreads by rhizomes to form a dense mat. White flowers in March to early April. 'Green Sheen' is a particularly nice pest free cultivar of *P. terminalis.*

Parrotia persica **Persian Parrotia**
Zone 5-8 20-40' x 15-30'

Excellent pest-free specimen tree with attractive exfoliating bark and fall color. Tolerant of varying conditions once established, sun/part shade.

Parthenocissus quinquefolia **Virginia Creeper**
Parthenocissus tricuspidata **Japanese Creeper, Boston Ivy**
Zone 4-9 Climbing 30-50'

Deciduous vine will crawl on ground, up trees or other structures. Tolerates virtually any condition. Low maintenance cover for walls. Foliage of *P. quinquefolia* is more lustrous and leaf is 3-lobed.

Paxistima canbyi **Canby Paxistima**
Zone 3-7 1' x 3-5'

Low growing, evergreen shrub with dark green leaves. Full sun/part shade. Tolerates high pH.

Phellodendron amurense **Amur Corktree**
Zone 4-7 30-45' x equal or greater spread

Adaptable to a wide range of soils, tolerates pH, drought, air pollution and full sun. Grows quite large so siting is important; fruit can be messy.

***Philadelphus* species** **Sweet Mockorange**
Zone 4-8 10-12' x 10-12'

Sweetly scented white flowers. Full sun/light shade. Transplants readily. Fast growing.

Physocarpus opulifolius **Common Ninebark**
Zone 2-7 5-10' x 6-10'

Native shrub easily transplanted and adaptable. Full sun/part shade. Tolerates all soil conditions and drought. Good for naturalizing.

Picea glauca **White Spruce**
Zone 2-6 40-60' x 10-20'

Broad conical tree. Prefers full sun to some shade. Light green needles form dense shape. 'Conica', the Alberta Spruce, is widely sold and used in the landscape. Susceptible to spider mites, particularly when grown against buildings.

Picea omorika **Serbian Spruce**
Picea orientalis **Oriental Spruce**
Zone 4-7 50-60' x 20-30'

Graceful evergreen trees tolerate drought, high pH and urban conditions. Protect from winter winds.

Pieris floribunda **Mountain Pieris, Fetter Bush**
Zone 4-8 2-6' x equal spread

Evergreen shrub prefers moist, well-drained soil, tolerant of high pH and resistant to lacebug. Susceptible to Phytophthora root rot if not sited in a well-drained location. An interspecific hybrid, 'Brouwer's Beauty', has flower clusters that are horizontal and arching.

Pieris japonica **Japanese Pieris**
Zone 5-7 9-12' x 6-8'

Upright, broadleaf evergreen shrub with bronze new growth which changes to dark green at maturity. White, slightly fragrant urn-shaped flowers appear in March to April. Plant in partial shade to minimize lacebug problems.

Pinus banksiana **Jack Pine**
Zone 2-7 35-50' x irregular spreading

Very hardy for colder climates. Will survive in almost pure sand, and dry, acid soils. Initially pyramid shaped but becomes more open and flat-topped at maturity.

Pinus bungeana **Lacebark Pine**
Zone 5-7 30-50' x 20-35'

Nice specimen tree with interesting, exfoliating bark. Prefers well-drained soil and sun. Tolerant of high pH.

COMMON NINEBARK
Physocarpus opulifolius

Pinus cembra **Swiss Stone Pine**
Pinus koraiensis **Korean Pine**
Zone 4-7 30-40' x 15-20'

Prefers well-drained, acidic soil, good air circulation, full sun. Slow growing, hardy, and salt tolerant. *P. cembra* possible substitute for Japanese and Austrian Black pines.

Pinus parviflora **Japanese White Pine**
Zone 4-7 25-50' x similar or greater spread

Requires good drainage but tolerates most soil conditions including soil compaction. Salt tolerant. Drought tolerant once established.

Pinus strobus **Eastern White Pine**
Zone 3-7 50-80' x 20-40'

Prefers moist, well-drained soils but tolerates dry conditions, full sun/light shade, rapid growing when young. Subject to white pine weevil damage to terminal, intolerant of salt. An excellent native evergreen.

EASTERN WHITE PINE
Pinus strobus

Potentilla fruticosa **Bush Cinquefoil**
Zone 2-6 1-4' x 2-4'

Moist, well-drained soils but is very adaptable, will do well under dry conditions, full sun/light shade, likes neutral to alkaline conditions. Extremely cold hardy. Long bloom period. Many improved cultivars available.

Prunus maackii **Amur Chokecherry**
Zone 3-6 35'-45' x 20-35'

Small dense tree with cinnamon-brown exfoliating bark. Prefers well-drained soil, pH tolerant, sun/shade. White flowers in May.

Prunus maritima **Beach Plum**
Zone 3-6 6' x equal spread

Adaptable to most soil conditions except wet, drought tolerant once established, full sun, salt tolerant. White flowers in May followed by purple fruit in late summer. Good for naturalizing in coastal plantings.

Prunus sargentii **Sargent Cherry**
Zone 4-7 20-30' x similar spread

Moist, well-drained soils, full sun/light shade. Single pink flowers in spring before the foliage, fall colors of yellow to red. Considered short-lived though relatively free of problems in a trouble-prone genus.

Prunus subhirtella **Higan Cherry**
Zone 5-8 20-40' x wider spread

Culture similar to the above; semi-double pink flowers in spring, occasionally re-blooming in fall. Considered short-lived though relatively pest free. 'Autumnalis' is a recommended variety.

Pseudolarix amabilis **Golden-larch**
Zone 5-7 30-50' x 20-40'

Slow-growing specimen tree, deciduous, golden yellow fall color. Prefers well-drained soil in full sun, tolerates air pollution.

Ptelea trifoliata **Hoptree**
Zone 3-9 15-20' x equal spread

Prefers moist, well-drained soils but very adaptable, sun/heavy shade. An interesting native tree with trifoliate leaves and fragrant flowers in June.

Pterostyrax hispida **Fragrant Epaulettetree**
Zone 4-8 20-30' x equal spread

Attractive small tree with white fragrant flowers in June. Prefers moist, acid, well-drained soils, sun/light shade.

Pyracantha coccinea **Scarlet Firethorn**
Zone 6-9 6-18' x equal spread

Berry-like, orange-red fruit ripens in September and persists into winter. Plant in full sun for best fruit but can tolerate part-shade. Use as an informal hedge. Great for trellising and espaliers on walls. Difficult to transplant.

Pyrus calleryana **Callery Pear**
Zone 5-8 30-50' x 20-35'

Adaptable to varying soils, air pollution, etc. 'Bradford' has narrow branch crotches that are prone to breaking. 'Aristocrat' has more horizontal branching and is less prone to breakage than 'Bradford'; 'Chanticleer' is more narrowly upright and shows better fire blight resistance. White flowers in clusters in spring, good scarlet purple fall foliage.

Quercus acutissima **Sawtooth Oak**
Zone 6-9 40-60' x equal spread

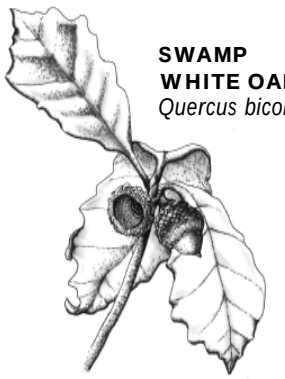
Prefers acid, well-drained soils but adaptable to varying conditions, may develop chlorosis on high pH soils, full sun. Simple foliage with serrated edges, attractive yellow fall color.

Quercus alba **White Oak**
Zone 4-9 50-80' x equal spread

Adaptable to various soil types; prefers moist, acid conditions, full sun. Dark green lobed leaves, fall color red to brown. Scaly white bark attractive year round. Native.

Quercus bicolor
Swamp White Oak
Zone 4-8
50-60' x equal spread

Moist, acid soils but very drought tolerant once established, broadly lobed, leathery leaf, good dark green color, yellow fall foliage. Drought tolerant. Native.



SWAMP WHITE OAK
Quercus bicolor

Quercus imbricaria **Shingle Oak**
Zone 4-8 50-60' x equal spread

Simple leaved oak. Easy to transplant, tolerant of dry soils and urban conditions; full sun. Native.

Quercus macrocarpa **Bur Oak**
Zone 3-8 70-80' x equal spread

Large tree with large lobed leaves, white undersides. Tolerates dry sites and urban conditions. Difficult to transplant. Native.

Quercus palustris **Pin Oak**
Zone 4-8 60-70" x 25-40'

Prefers moist, acid soils, intolerant of high pH, full sun, tolerates wet soils and urban conditions. Deeply lobed leaves with pyramidal growth habit; lower branches droop.

Quercus phellos **Willow Oak**
Zone 5-9 40-60' x equal spread

Adaptable to many soil conditions, full sun, fibrous root system allows for ease of transplanting; narrow, simple leaves.

Quercus rubra **Northern Red Oak**
Zone 4-8 60-75' x equal spread

Moist, acid soils, full sun. Intolerant of high pH, tolerates urban conditions. Easily transplanted.

Quercus shumardii **Shumard Oak**
Zone 5-9 40-60' x equal spread

Leaves may turn red in fall. Easy to transplant. Tolerant of drought or wet conditions.

Quercus velutina **Black Oak**
Zone 3-9 50-60' x variable spread

Does well in moist, acid soils. Very difficult to transplant because of extensive tap root. Bark is nearly black with deep, vertical furrows.

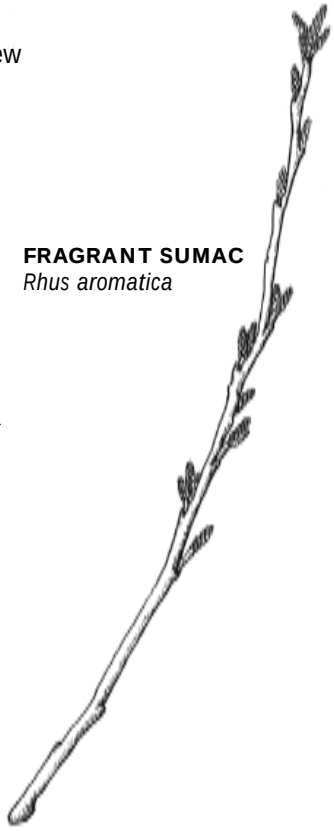
***Rhododendron* species and cultivars**
Zone 2-9 Ground cover to small tree

Over 900 species and thousands of hybrids exist, most are low maintenance plants when grown in the appropriate site. They generally prefer moist well-drained acid soils high in organic matter and perform best in partial shade. In full sun winter injury and blossom fading is more pronounced as are problems with lace bugs. In southern New England 'Dora Amateis' and *R. maximum* are particularly susceptible to lacebug when grown in full sun; and to our south, lacebug problems are much more widespread. With the exception of some of the heavily indumented rhododendrons (*R. yakushimanum, R. smirnovii* and hybrids), all are susceptible to the black vine weevil which can kill small plants. (See discussion under *Taxus*.) Among the large leaved rhododendrons, *R. fortunei* and its hybrids ('Scintillation') are very attractive to deer. Small leaved rhododendrons, including 'PJM', 'Silvery Pink', 'Anglo', etc., are particularly cold tolerant as are deciduous azaleas (*R. schlippenbachii, R. calendulaceum, R. viscosum,* etc.). The deciduous Exbury hybrids, however, have too many insect and disease problems to be included on this list. There are thousands of good hardy, hybrid, evergreen azaleas including 'Hino crimson', 'Delaware Valley White', *R. yedoense* var. *poukhenensis,* etc. However, Belgian or florist azaleas are often mistakenly sold as hardy. As a rule of thumb, if the flower looks too good to be true, it is probably not hardy.

Several species are native to southern New England, including *R. maximum, R. viscosum, R. prinophyllum, R. canadense* and *R. periclymenoides.*

Rhus aromatica
Fragrant Sumac
Zone 3-9
2'-6' x 6-10'

Adaptable to various soil conditions, full sun. Attractive glossy leaves in threes, yellow flowers and spiky male catkins. Native. Spreading habit of cultivar 'Gro-Low' makes a good choice for embankments or a ground cover.



FRAGRANT SUMAC
Rhus aromatica

Rhus copallina **Shining Sumac**
Zone 4-9 5-15' x similar spread

Good for wet or dry, rocky areas or embankments. Careful siting is important as it can form large colonies. Good for naturalizing, excellent fall color.

Sarcococca hookeriana **Sweetbox**
Zone 6-8 4-6' x equal spread

Prefers acid, well-drained soils in partial shade to shade. Will tolerate drought and polluted air quality. White, fragrant flowers appear in March-April. *S. hookeriana* var. *humilis* grows smaller, has black fruits, and is very cold hardy.

Sassafras albidum **Common Sassafras**
Zone 4-9 30-60' x 25-40'

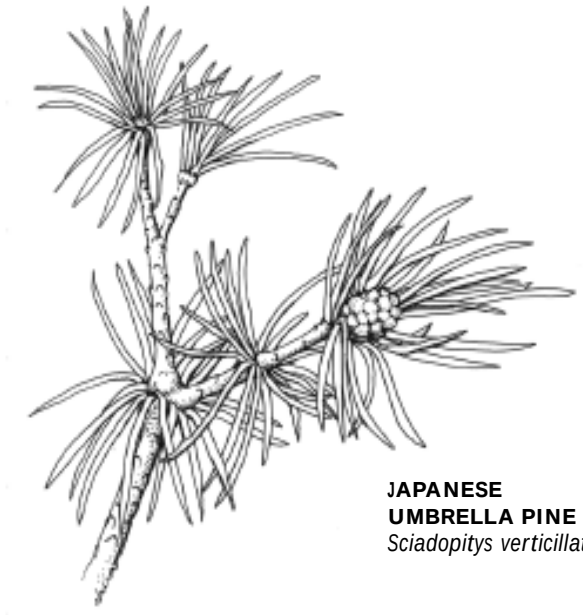
Full sun/light shade. Prefers moist, acid, loamy, well-drained soil. Prune in winter. Excellent for naturalized plantings. Outstanding fall color. Native.

Schizophragma hydrangeoides **Japanese Hydrangea-vine**
Zone 5-7 Climbing 20-30'

This clinging vine is similar to but not as vigorous or as large as *Hydrangea anomala* subsp. *petiolaris.* Inflorescenses are flat-topped and 8-10" across and droop slightly. Flowers in late June or early July.

Sciadopitys verticillata **Japanese Umbrella Pine**
Zone 5-7 20-30' x 15-20'

Prefers moist, well-drained soil, full sun, some protection from wind. Drought tolerant once established. Slow growing.



JAPANESE UMBRELLA PINE
Sciadopitys verticillata

JAPANESE SNOWBELL
Styrax japonica

Sophora japonica **Japanese Pagoda Tree**
Zone 4-7 50-75' x wide spreading

Well-drained soil supplemented with organic matter, drought and urban tolerant. White, fragrant flowers in mid summer. 'Regent' is reputed to flower earlier than the species.

Spiraea* x *bumalda **Bumald Spirea**
Zone 3-8 2-3' x 4-5'

A tough plant in the landscape, annual pruning required for best effect. White flowers in June-August.

Spiraea* x *vanhouttei **Vanhoutte Spirea**
Zone 3-8 6-8' x 10-12'

Adaptable to various soil types, full sun. White flowers on arching stems in May. Requires pruning of dead wood in spring.

Stephanandra incisa **Cutleaf Stephanandra**
Zone 4-7 2-3' x spreading

Graceful shrub prefers well-drained soils supplemented with organic matter, drought intolerant, full sun/part shade. 'Crispa' makes an excellent ground cover.

Stewartia koreana **Korean Stewartia**
Stewartia pseudocamellia **Japanese Stewartia**
Zone 6-9 20-30' x 10-15'

Prefers moist, acid soil supplemented with organic matter. Camellia-like blossoms flower in summer. Sun/shade. Extraordinary exfoliating bark. Leaves have orange-red-bronze fall color.

Styrax japonica **Japanese Snowbell**
Zone 5-8 20-30' x equal spread

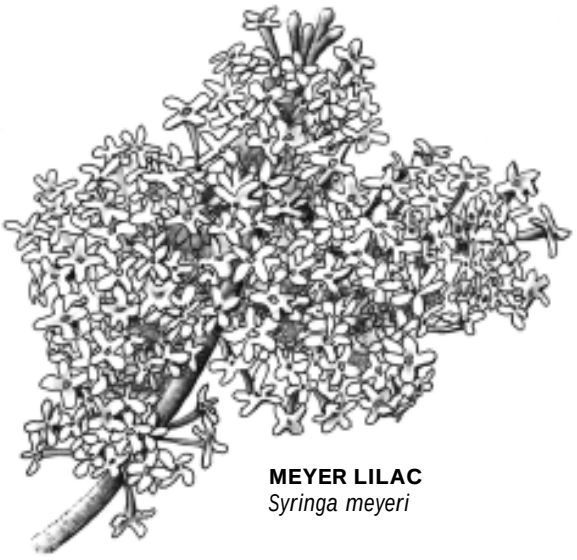
Prefers moist, well-drained, acid soil supplemented with organic matter, full sun/part shade. May be subject to winter damage in cold sites. Exquisitely fragrant, white, bell-shaped, pendulous flowers in June.

Symphoricarpos* x *chenaultii **Chenault Coralberry**
Zone 4-7 2' x 12'

A cross between *S. microphyllus* and *S. orbiculatus.* Pink flowers in June and white fruit in fall. Tolerant of various soil types and high pH. 'Hancock' is a beautiful low-growing cultivar.

Syringa meyeri **Meyer Lilac**
Zone 3-7 4-8' x 6-12'

Small, dense, mounded shrub. Flower buds emerge early, may be damaged by early frost. Violet-purple flowers cover entire plant for 10-14 days in May. Easy to grow and resistant to mildew. 'Palibin' is common compact form.



MEYER LILAC
Syringa meyeri

Syringa microphylla **Littleleaf Lilac**
Zone 4-7 6-9' x 12'

Rosy lilac, fragrant, flowers in May to early June. Adaptable, heat tolerant, mildew resistant.

Syringa patula **Manchurian Lilac**
Zone 4-7 4-8' x equal spread

Adaptable to various soil conditions, full sun, resistant to powdery mildew. 'Miss Kim' is a noteworthy cultivar.

Syringa reticulata **Japanese Tree Lilac**
Zone 3-7 20-30' x 15-25'

Good small urban tree prefers well-drained, moist soil, pH tolerant, full sun. Salt and wind tolerant. Resistant to lilac borer and powdery mildew. Early summer flowering. 'Ivory Silk' and 'Summer Snow' are excellent cultivars.

Taxodium ascendens **Pond Baldcypress**
Taxodium distichum **Common Baldcypress**
Zone 4-9 50-70' x 20-30'

Prefers moist acid soils, very adaptable to wet or dry soils, full sun. A large tree for parks, estates or wet areas. Good wind tolerant urban tree.

COMMON BALDCYPRESS
Taxodium distichum

***Taxus* species and cultivars** **Yews**
Zone 4-7 Variable spread

High quality, versatile evergreens, slow growing, easily grown and pruned, resistant to many pests. Have been overused, and now black vine weevil is a very serious pest of young plants, particularly in the nursery. Larger plants sited in the landscape are reasonably tolerant of this pest; but because yews can harbor large populations of weevils, landscapers should exercise care in planting small susceptible plants (rhododendron, euonymus, etc.) near infested yews. The foliage and fruit of yew are toxic to children if ingested, yet the foliage qualifies as a deer candy.

***Taxus baccata* 'Repandens'** **Spreading English Yew**
Zone 5-7 2-4' x 12-15'

Hardy dwarf, spreading form has pendulous branch tips and dark green needles. Tolerant of high pH but requires good drainage. 'Adpressa' is another good, low, shade-loving cultivar.

Taxus cuspidata **Japanese Yew**
Zone 4-7 10-40' x equal spread

Prefers a moist, sandy loam, does not tolerate wet soils for any length of time. Extremely cold hardy.

***Taxus* x *media* cultivars** **Yews**
Zone 4-7 Variable

Hybrids of *T. baccatta* and *T. cuspidata* resemble *T. cuspidata* in many respects. Common cultivars include: 'Brownii', 'Densiformis', 'Hatfieldii', 'Hicksii', 'Nigra' and 'Tauntonii'. Prefer moist, sandy loams, not tolerant of wet soil.

Tetradium danielli **Korean Evodia**
Zone 5-8 25-30' x equal spread

Prefers moist, well-drained soil. pH adaptable and drought tolerant once established; full sun. Small white flowers in flat-topped clusters in mid summer; attractive to bees.

Thuja occidentalis **American Arborvitae**
Zone 3-7 40'-60' x 10'-15'

Very durable. Can be grown in most conditions and soils. Good plant for screens or hedges. Rich green in summer. Plant cultivars that stay green through winter.

Thuja plicata **Western Arborvitae**
Zone 5-7 50-70' x 15-25'

Moist, fertile soils but tolerant of drier soils; sun/shade; pH adaptable. A fast growing pyramidal tree with bright evergreen leaves and reddish-brown fibrous bark. Large for many landscapes but possible substitute for Eastern Hemlock.

Thujopsis dolobrata **Hiba Arborvitae**
Zone 5-7 30-50' x 10-20'
Dense, pyramidal, evergreen with shiny flattened leaves. Prefers moist, acid soil and some shade. Protect from drying winds.

***Tilia* species** **Linden**
T. americana **American Linden**
T. cordata **Littleleaf Linden**
T. tomentosa **Silver Linden**
Zone 4-7 60-80' x 2-3 spread

Easily transplanted. Prefer moist, acid, organic soil. Full sun/part shade; pH adaptable. *T. americana* is particularly suited for naturalizing. *T. cordata* will tolerate pollution but is more susceptible to aphids. *T. tomentosa* is shorter, more sustainable and will tolerate heat and drought. *T. tomentosa* is recommended for urban and residential plantings.

Tsuga species **Hemlocks**
Zone variable Variable spread

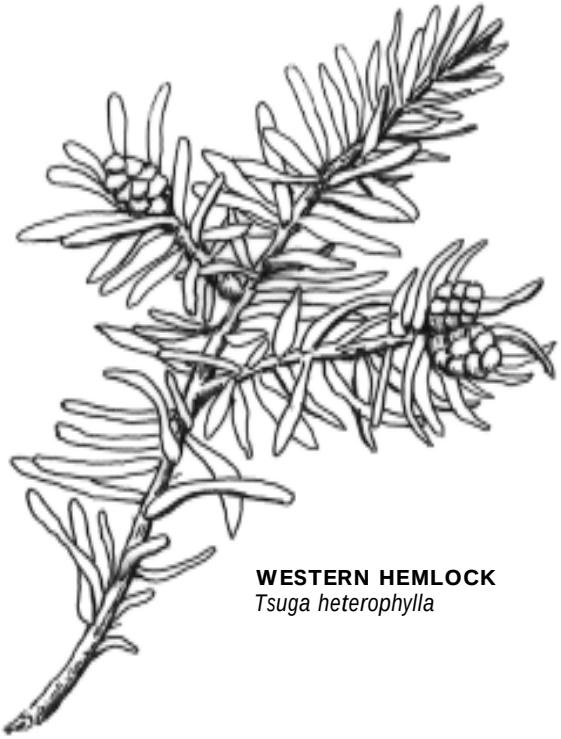
Hemlock wooly adelgid is now a serious pest of both *Tsuga canadensis* and *T. caroliniana* throughout southern New England. Hence, we urge caution in the use of these important landscape species. Left untreated, this pest will rapidly kill susceptible hemlocks, but yearly applications of insecticides provide effective control in the landscape. Species resistant to the adelgid include *T. diversifolia, T. heterophylla, T. chinensis, T. mertensia* and *T. sieboldii.* While all of these species are being evaluated for regional adaptability, only *T. diversifolia* and *T. heterophylla* can be recommended with reasonable confidence at this time.

Tsuga diversifolia **Northern Japanese Hemlock**
Zone 5-7 35-60' x 20-30'

Slow growing, multi-stemmed tree with dense, dark green foliage. Prefers moist sites in full sun, easily transplanted. At least one R.I. nursery has been growing this plant for years, and it appears to be well suited to our climate.

Tsuga heterophylla **Western Hemlock**
Zone 6-8 60-80' x 30'

Looks very much like Canadian Hemlock. Prefers a humid climate and moist soil. Cold hardiness is marginal in New England; plants from northern Idaho show very slight winter damage, coastal material is probably not hardy here. Plant hardy stock.



WESTERN HEMLOCK
Tsuga heterophylla

Ulmus parvifolia **Lacebark Elm**
Zone 5-9 40-50' x equal spread

Adaptable to various soil and pH conditions, good for urban areas, resistant to Dutch elm disease, elm leaf beetle and Japanese beetle. Several new cultivars recently introduced; excellent bark and foliage.

Vaccinium angustifolium **Lowbush Blueberry**
Zone 2-5 0.5'-2' x 2' or greater spread

Does very well in dry, acid, poor soils. Lowbush blueberry is a managed wild crop in Maine.

HIGHBUSH BLUEBERRY
Vaccinium corymbosum

Vaccinium corymbosum **Highbush Blueberry**
Zone 3-7 6-12' x 8-12'

Native to swamps but does well in dry, acid, poor and sandy soils in full sun or partial shade. Mulch.

Vaccinium macrocarpon **American Cranberry**
Zone 2-6 2-6" x spreading

Evergreen groundcover prefers full sun, acid conditions and moist, cool roots. Pinkish flowers in spring and red, cranberry-like fruit in fall.

Vaccinium vitis-idaea **Cowberry**
Zone 2-5 10"x spreading

Evergreen, dark green foliage turns mahogany in winter. Flowers are white or pinkish borne in May-June. Prefers full sun, moist, peaty soil. Fruit is dark red.

Viburnum acerifolium **Mapleleaf Viburnum**
Zone 4-8 4-6' x 4'

Deciduous, native shrub. Very shade tolerant and excellent for naturalizing. Suckering shrubs can form extensive thickets. Flowers are yellowish-white and fall foliage ranges from pink to rose to red to grape.

Viburnum* x *burkwoodii **Burkwood Viburnum**
Zone 5-8 8-10' x 5-7'

Semi-evergreen shrub tolerates heat, cold, and air pollution. Pink buds and white flowers. Very fragrant. Requires slightly moist, well-drained soil, pH adaptable.

Viburnum carlesii **Koreanspice Viburnum**
Viburnum* x *carlecephalum **Fragrant Viburnum**
Vibernum* x *juddii **Judd Viburnum**
Zone 5-7 4-5' x 4-8'

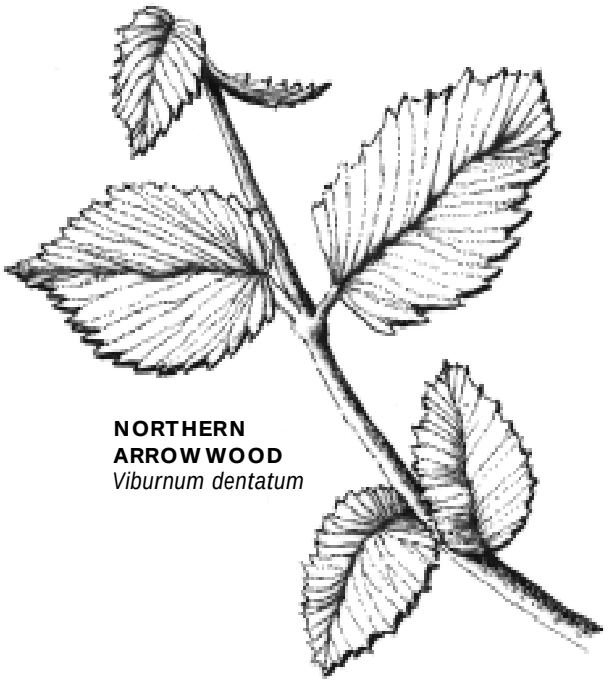
Rounded, dense shrub with pink to reddish buds open white in April-May. Fragrance is outstanding. Prefers well-drained, slightly acid soil and full sun/partial shade. 'Compactum' is one of the best dwarf clones with very dark green leaves and resistance to leaf spot. *V.* x *carlecephalum* blooms in early May, size 10' x 10'. *V.* x *juddii* hardy to Zone 4, also to 10'.

Viburnum cassinoides **Witherod Viburnum**
Zone 3-8 5-6' x equal spread

Native, dense, rounded shrub. Bronze foliage changes to orange-red or purple in fall. Creamy white flowers. Fruit changes from green to pink, then red to blue, then black in September. Use in borders or for naturalizing.

Viburnum dentatum **Northern Arrowwood**
Zone 3-8 6-8' x 6-15'

Native, salt tolerant shrub. Adaptable to various soil conditions, sun/shade. Forms large clumps.



NORTHERN ARROWWOOD
Viburnum dentatum

Viburnum dilatatum **Linden Viburnum**
Viburnum wrightii **Wright Viburnum**
Zone 5-7 8-10' x equal spread

Similar to other viburnums in site preference. White flat-topped flower clusters in May, showy red fruit in fall. pH tolerant.

Viburnum farreri **Fragrant Viburnum**
Zone 5-8 8-12' x similar spread

Early to flower, flower buds may be damaged by late frost. White, fragrant blooms in mid-April.

Viburnum lentago **Nannyberry Viburnum**
Zone 3-7 15-18' (possibly to 30') x variable spread

Suckers easily to form thicket. Adaptable to a range of conditions. Tolerates sun to shade. Very durable. A good native shrub or small tree for naturalizing.

Viburnum plicatum **Doublefile Viburnum**
var. *tomentosum*
Zone 5-7 8-10' x 9-12'

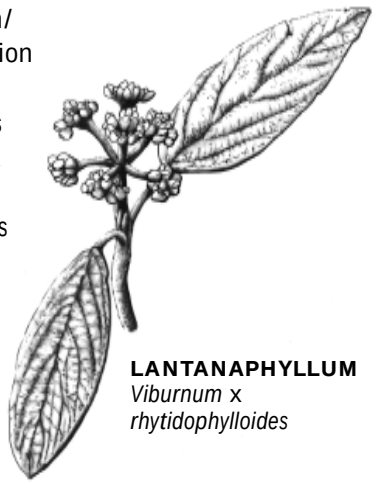
Prefers moist, well-drained soils and shade, not particularly drought tolerant. Lovely bloom along branches in May. Preferred cultivars include 'Mariesii' and 'Shasta'.

Viburnum prunifolium **Blackhaw Viburnum**
Zone 3-9 12-15' x 8-12'

Adaptable to various soil conditions, drought tolerant once established, sun/part shade. A good native shrub or small tree for naturalizing.

Viburnum* x *rhytidophylloides **Lantanaphyllum Viburnum**
Viburnum rhytidophyllum **Leatherleaf Viburnum**
Zone 4-8 8-10' x equal spread

Evergreen shrubs adaptable to soil conditions, full sun/light shade, needs protection from winter wind. White flat-topped flower clusters in April followed by black fruit effective in the fall. Dark green leathery leaves persist in the fall. 'Allegheny' and 'Willowwood' are fine selections of *V.* x *rhytidophylloides*. *V. rhytidophyllum* shade tolerant and hardy to zone 5.



LANTANAPHYLLUM
Viburnum x *rhytidophylloides*

Viburnum sargentii **Sargent Viburnum**
Zone 4-7 12-15' x equal spread

Adaptable to various soil conditions, pH tolerant, full sun/shade; a number of USDA introductions to choose from: 'Onondaga', 'Susquehanna'. Attractive red fruit last into winter.

Viburnum sieboldii **Siebold Viburnum**
Zone 4-7 15-20' x 10-15'

Adaptable to various soil conditions but prefers moist, well-drained soil; pH adaptable, sun/part shade, not particularly drought tolerant. 'Seneca' has persistent red fruit.

Viburnum trilobum **American Cranberrybush Viburnum**
Zone 2-7 8-12' x equal width

Adaptable to various soil conditions, easy to grow, full sun/part shade. Native.

Weigela florida
Weigela
Zone 5-8
6-9' x 9-12'

Quite adaptable but prefers a moist well-drained soil, full sun, tolerates air pollution. Requires rejuvenation pruning to maintain decent shape; many improved cultivars available. Early summer blooming.

WEIGELA
Weigela florida

Xanthorhiza simplicissima **Yellowroot**
Zone 3-9 2-3' x spreading

Groundcover prefers moist, well-drained soils, tolerates heavy soils, sun/shade, tolerates dry conditions.

Index of Common Names

Fir, Cilician ..... *Abies cilicica*
Fir, Korean ..... *Abies koreana*
Fir, Nikko ..... *Abies homolepis*
Fir, Noble ..... *Abies procera*
Fir, Veitch ..... *Abies veitchii*
Fir, White ..... *Abies concolor*
Firethorn, Scarlet ..... *Pyracantha coccinea*
Forsythia, Border ..... *Forsythia* x *intermedia*
Forsythia, Weeping ..... *F. suspensa*
Fothergilla, Dwarf ..... *Fothergilla gardenii*
Fothergilla, Large ..... *Fothergilla major*
Franklin Tree ..... *Franklinia alatamaha*
Fringetree, Chinese ..... *Chionanthus retusus*
Fringetree, White ..... *Chionanthus virginicus*
Ginkgo or Maidenhair Tree ..... *Ginkgo biloba*
Goldenraintree ..... *Koelreuteria paniculata*
Golden-larch ..... *Pseudolarix amabilis*
Groundsel-bush ..... *Baccharis halimifolia*
Hawthorn, Green ..... *Cratageus viridis* 'Winter King'
Hemlocks ..... *Tsuga* species
Hemlock, Northern Japanese ..... *Tsuga diversifolia*
Hemlock, Western ..... *Tsuga heterophylla*
Hercules Club ..... *Aralia spinosa*
Hiba arborvitae ..... *Thujopsis dolobrata*
Holly, Blue ..... *Ilex* x *meserveae* hybrids
Holly, Finetooth ..... *Ilex serrata*
Holly, Inkberry ..... *Ilex glabra*
Holly, Japanese ..... *Ilex crenata*
Holly, Longstalk ..... *Ilex pedunculosa*
Holly, Winterberry ..... *Ilex verticillata*
Honeylocust, Thornless Common ..... *Gleditsia triacanthos* var. *inermis*
Honeysuckle, Dwarf Bush ..... *Diervilla sessilifolia*
Honeysuckle, Trumpet ..... *Lonicera sempervirens*
Hornbeam, American ..... *Carpinus caroliniana*
Hornbeam, American Hop ..... *Ostrya virginiana*
Hornbeam, European ..... *Carpinus betulus*
Hoptree ..... *Ptelea trifoliata*
Hydrangea, Bigleaf ..... *Hydrangea macrophylla*
Hydrangea, Climbing ... *Hydrangea anomala* subsp. *petiolaris*
Hydrangea, Oak-leaved ..... *Hydrangea quercifolia*
Hydrangea, Panicle ..... *Hydrangea paniculata*
Hydrangea, Smooth ..... *Hydrangea arborescens*
Japanese Hydrangea-vine .... *Schizophragma hydrangeoides*
Japanese Pagoda Tree ..... *Sophora japonica*
Japanese Plum Yew ..... *Cephalotaxus harringtonia*
Japanese Raisintree ..... *Hovenia dulcis*
Japanese Snowbell ..... *Styrax japonica*
Japanese Umbrella Pine ..... *Sciadopitys verticillata*
Juniper, Chinese ..... *Juniperus chinensis*
Juniper, Eastern Red Cedar ..... *Juniperus virginiana*
Juniper, Shore ..... *Juniperus conferta*
Katsura Tree ..... *Cercidiphyllum japonicum*
Kentucky Coffeetree ..... *Gymnocladus dioicus*
Kerria, Japanese ..... *Kerria japonica*
Labrador Tea ..... *Ledum groenlandicum*
Larch, Eastern ..... *Larix laricina*
Larch, Japanese ..... *Larix kaempferi*
Leatherleaf ..... *Chamaedaphne calyculata*
Leatherwood ..... *Dirca palustris*
Leucothoe ..... *Leucothoe* species
Lilac, Japanese Tree ..... *Syringa reticulata*
Lilac, Littleleaf ..... *Syringa microphylla*
Lilac, Manchurian ..... *Syringa patula* 'Miss Kim'
Lilac, Meyer ..... *Syringa meyeri*
Lindens ..... *Tilia* species
Linden, American ..... *T. americana*
Linden, Littleleaf ..... *T. cordata*
Linden, Silver ..... *T. tomentosa*
Maackia, Amur ..... *Maackia amurensis*
Magnolia, Ashe ..... *Magnolia ashei*
Magnolia, Cucumbertree ..... *Magnolia acuminata*
Magnolia, Kobus ..... *Magnolia kobus*
Magnolia, Loebner ..... *Magnolia* x *loebneri*
Magnolia, Oyama ..... *Magnolia sieboldii*
Magnolia, Saucer ..... *Magnolia* x *soulangiana*
Magnolia, Star ..... *Magnolia kobus* var. *stellata*
Magnolia, Sweetbay ..... *Magnolia virginiana*
Magnolia, Yulan ..... *Magnolia denudata*
Maple, Fullmoon ..... *Acer japonicum*
Maple, Hedge ..... *Acer campestre*
Maple, Japanese ..... *Acer palmatum*
Maple, Paperbark ..... *Acer griseum*
Maple, Purpleblow ..... *Acer truncatum*
Maple, Striped ..... *Acer pennsylvanicum*
Maple, Swamp/Red ..... *Acer rubrum*
Maple, Tatarian ..... *Acer tataricum*
Maple, Three-flowered ..... *Acer triflorum*
Maple, Trident ..... *Acer buergerianum*
Mockorange, Sweet ..... *Philadelphus* species
Mountain Holly, Sour Gum ..... *Nemopanthus mucronatus*
Mountain-Laurel ..... *Kalmia latifolia*
Ninebark, Common ..... *Physocarpus opulifolius*
Oak, Black ..... *Quercus velutina*
Oak, Northern Red ..... *Quercus rubra*
Oak, Pin ..... *Quercus palustris*
Oak, Sawtooth ..... *Quercus acutissima*
Oak, Shingle ..... *Quercus imbricaria*

Oak, Shumard ..... *Quercus shumardii*
Oak, Swamp White ..... *Quercus bicolor*
Oak, White ..... *Quercus alba*
Oak, Willow ..... *Quercus phellos*
Oregon Grapeholly ..... *Mahonia aquifolium*
Pachysandra, Japanese ..... *Pachysandra terminalis*
Parrotia, Persian ..... *Parrotia persica*
Paxistima, Canby ..... *Paxistima canbyi*
Pear, Callery ..... *Pyrus calleryana* cultivars
Pearlbush, Common ..... *Exochorda racemosa*
Pieri, Japanese ..... *Pieris japonica*
Pieris, Mountain, Fetterbush ..... *Pieris floribunda*
Pine, Eastern White ..... *Pinus strobus*
Pine, Jack ..... *Pinus banksiana*
Pine, Japanese White ..... *Pinus parviflora*
Pine, Korean ..... *Pinus koraiensis*
Pine, Lacebark ..... *Pinus bungeana*
Pine, Swiss Stone ..... *Pinus cembra*
Redwood, Dawn ..... *Metasequoia glyptostroboides*
Rhododendron ..... *Rhododendron* species and cultivars
Rubber Tree, Hardy ..... *Eucommia ulmoides*
Quince, Japanese Flowering ..... *Chaenomeles japonica*
Sassafras, Common ..... *Sassafras albidum*
Serviceberry, Allegheny ..... *Amelanchier laevis*
Serviceberry, Downy ..... *Amelanchier arborea*
Serviceberry, Shadblow ..... *Amelanchier canadensis*
Seven-Son Flower ..... *Heptacodium miconioides*
Siberian Peashrub ..... *Caragana arborescens*
Silverbell, Carolina ..... *Halesia tetraptera*
Silverbell, Mountain ..... *Halesia monticola*
Silverbell, Two-winged ..... *Halesia diptera*
Smoketree, American ..... *Cotinus obovatus*
Smoketree, Common ..... *Cotinus coggygria*
Sourwood ..... *Oxydendrum arboreum*
Spicebush ..... *Lindera benzoin*
Spirea, Bumald ..... *Spiraea* x *bumalda*
Spirea, Vanhoutte ..... *Spiraea* x *vanhouttei*
Spruce, Oriental ..... *Picea orientalis*
Spruce, Serbian ..... *Picea omorika*
Spruce, White ..... *Picea glauca*
Stephanandra, Cutleaf ..... *Stephanandra incisa*
Stewartia, Japanese ..... *Stewartia pseudocamellia*
Stewartia, Korean ..... *Stewartia koreana*
St. Johnswort ..... *Hypericum* species
Sumac, Fragrant ..... *Rhus aromatica*
Sumac, Shining ..... *Rhus copallina*
Sweetbox ..... *Sarcococca hookeriana*
Sweetgum, American ..... *Liquidambar styraciflua*
Sweet Fern ..... *Comptonia peregrina*
Trumpet Vine ..... *Campsis radicans*
Tuliptree ..... *Liriodendron tulipifera*
Tupelo, Black ..... *Nyssa sylvatica*
Viburnum, American Cranberrybush .... *Viburnum trilobum*
Viburnum, Arrowwood ..... *Viburnum dentatum*
Viburnum, Blackhaw ..... *Viburnum prunifolium*
Viburnum, Burkwood ..... *Viburnum* x *burkwoodii*
Viburnum, Doublefile ..... *Viburnum plicatum*
Viburnum, Fragrant ..... *Viburnum* x *carlecephalum*
Viburnum, Fragrant ..... *Viburnum farreri*
Viburnum, Judd ..... *Viburnum* x *juddii*
Viburnum, Koreanspice ..... *Viburnum carlesii*
Viburnum, Lantanaphyllum . *Viburnum* x *rhytidophylloides*
Viburnum, Leatherleaf ..... *Viburnum rhytidophyllum*
Viburnum, Linden ..... *Viburnum dilatatum*
Viburnum, Mapleleaf ..... *Viburnum acerifolium*
Viburnum, Nannyberry ..... *Viburnum lentago*
Viburnum, Sargent ..... *Viburnum sargentii*
Viburnum, Siebold ..... *Viburnum sieboldii*
Viburnum, Wayfaring Tree .... *Viburnum lantana* 'Mohican'
Viburnum, Witherod ..... *Viburnum cassinoides*
Viburnum, Wright ..... *Viburnum wrightii*
Virginia Creeper ..... *Parthenocissus quinquefolia*
Virginia Sweetspire ..... *Itea virginica*
Winterhazel, Fragrant ..... *Corylopsis glabrescens*
Winterhazel, Spike ..... *Corylopsis spicata*
Witchhazel ..... *Hammamelis* x *intermedia*
Witchhazel, Chinese ..... *Hammamelis mollis*
Witchhazel, Common ..... *Hammamelis virginiana*
Witchhazel, Vernal ..... *Hammamelis vernalis*
Weigela ..... *Weigela florida*
Yellowwood, American ..... *Cladrastis kentukea*
Yellowroot ..... *Xanthorhiza simplicissima*
Yew ..... *Taxus* species and cultivars
Yew ..... *Taxus* x *media* cultivars
Yew, Japanese ..... *Taxus cuspidata*
Yew, Spreading English ..... *Taxus baccata* 'Repandens'

APPENDIX ONE

URI Flowering Crabapple Tree Disease Evaluations: 1997

Variety	Flower/Fruit	Shape	Ht x Wd	Comments	Resistance to Disease			
					Apple Scab	*Fire Blight*	*Cedar Apple Rust*	*Powdery Mildew*
Adams	Pink/Purple	Round	20x20	3,4	Good	Good	Excel	Good
baccata 'Jackii'	White/Red	Round	30x30		Excel	* Poor	Excel	Good
Baskatong	Red/Dk Red	Round	30x30	3	Good	Excel	Excel	Excel
Beverly	White/Red	Upr Spr	25x30	1	Excel	* Poor	Excel	Excel
Bob White	White/Yel-Red	Horiz	20x25	2,4,5	Excel	* Fair	Excel	Good
Brandywine	Pink/Yellow	Upr Spr	20x20	2	Fair	Excel	Fair	Excel
Candied Apple	Pink/Red	Weeping	15x15	3,4	Fair	Excel	Excel	Excel
Centurion	Red/Red	Upr Spr	20x15	3	Good	Excel	Excel	Excel
Christmas Holly	White/Red	Spr	10x12	4	Good	Good	Excel	Excel
David	White/Red	Round	15x15	1	Good	Good	Excel	Excel
Dolgo	White/Red	Upr Spr	30x40	1,2,6	Good	Good	Excel	Excel
Donald Wyman	White/Red	Round	15x15	4	Good	* Poor	Excel	Good
floribunda	Pink to W/Red	Horiz	20x25	2,5	Good	* Fair	Excel	Good
Harvest Gold	White/Gold	Upr	30x15	3,4	Good	Excel	Excel	Excel
Henningi	White/Orange	Upr	25		Good	Excel	Good	Excel
Henry Kohankie	Pink to W/Red	Round	20x20	4	Good	Excel	Good	Excel
Hopa	Pink/Purple	Upr Spr	25x30	2	Poor	Excel	Excel	Excel
Indian Magic	Pink/Red-Or	Round	15x15	1,2,3,4	Fair	Excel	Good	Excel
Indian Summer	Red/Red	Upr Spr	20x20		Good	Good	Excel	Excel
Jewelberry	White/Red	Shrub	12x15	4,5	Good	Good	Excel	Excel
Liset	Red/Maroon	Horiz	15x20		Good	Good	Excel	Good
Mary Potter	White/Red	Shrub	15x30	1,2,3,4,5	Good	Good	Excel	Good
Molten Lava	White/Red	Horiz	15x15	2,3,4,5	Good	Good	Excel	Excel
Ormiston Roy	White/Red-Or	Upr Spr	20x25	4	Good	Good	Good	Excel
Pink Spires	Pink/Maroon	Upright	25	2	Good	Good	Excel	Excel
Prairifire	Red/Red	Upr Spr	20x20		Good	Excel	Excel	Excel
Professor Sprenger	White/Orange	Round	25x25	1,4	Excel	Excel	Excel	Excel
Profusion	Red/Dk Red	Round	15x15		Fair	Good	Excel	Good
Radiant	Red/Red	Upr Spr	25x20	2	Poor	Excel	Good	* Fair
Ralph Shay	White/Red	Upr Spr	-	3	Good	Excel	Excel	Good
Red Barron	Red/Dk Red	Narrow	18x10	3	Fair	Good	Good	Excel
Red Jade	White/Red	Weep'g	15x15		Fair	* Fair	Excel	* Fair
Red Jewel	White/Red	Horiz	15x12	4	Fair	* Poor	Excel	Good
Red Splendor	Pink/Red	Upr Spr	25x25		Fair	* Fair	Good	* Fair

Variety	Flower/Fruit	Shape	Ht x Wd	Comments	Resistance to Disease			
					Apple Scab	*Fire Blight*	*Cedar Apple Rust*	*Powdery Mildew*
Robinson	Red/Red	Upr Spr	25x25	3	Good	Excel	Excel	Excel
Royalty	Purple/Purple	Upr Spr	15x20		Poor	* Poor	Excel	Excel
sargentii	White/Red	Shrub	8x15	1,2,4,5	Excel	Good	Excel	Excel
Selkirk	Red/Red	Vase	25x25		Fair	Good	Excel	* Fair
Sentinel	White/Red	Upr Spr	15x10	4	Good	Good	Excel	Excel
Silver Moon	White/Red	Upr Spr	25x25	4	Good	Poor	Excel	Good
Snowdrift	White/Orange	Round	20x20	4,5	Good	* Fair	Excel	Excel
Strawberry Parfait	Pink/Red	Vase	20x25	1	Good	Excel	Excel	Excel
Sugar Tyme	White/Red	Round	20x20	1,2,3,4	Good	* Fair	Excel	Excel
tschonoskii	White/Yellow	Pyramid	28x14	3	Good	* Poor	Excel	Excel
Velvet Pillar	Red/Red	Nar Upr	20x14		Fair	* Fair	Excel	Good
White Angel	White/Gr+Red	Upr Spr	20x20	4	Good	* Fair	Fair	Excel
White Cascade	White/Coral	Weeping	15x15		Good	Excel	Excel	Excel
Winter Gold	White/Yellow	Round	25x25	2,4	Fair	* Fair	Excel	Good
yunnanensis 'Veitchii'	W/Brown	Narrow	20x10	3	Good	* Fair	Excel	Good
zumi 'Calocarpa'	White/Red	Horiz	25x30	2,5	Good	* Fair	Excel	Good

Additional Comments

1. Flowers lightly in alternate years
2. Fragrant flowers
3. Colorful fall foliage
4. Fruit remains on tree
5. Birds favor fruit as food
6. Messy fruit drop in midsummer

Key to Disease Resistance

Excel: No problem with disease
Good: Some leaves affected
Fair: Most leaves affected yet little or no defoliation, thus not a significant problem
Poor: Consistently defoliates in summer

* Apple Scab is the disease of consequence in the Northeast. Although we've not seen the potentially lethal fire blight, or the less serious Powdery Mildew, future conditions in the Northeast may favor these diseases.

Please note: this compilation is composed of local data collected over the last 4 years, adjusted with national disease ratings from NCEP/NCIP plantations throughout the country.
Marsha Browning & Larry Englander, 1997

APPENDIX TWO

Tree, Shrub and Vine Selections for Demanding Situations

DROUGHT OR DRY SOILS

Abies concolor
Acer campestre
Acer ginnala
Acer tataricum
Acer truncatum
Aesculus pavia
Amorpha fruticosa
Aralia spinosa
Arctostaphylos uva-ursi
Aronia arbutifolia
Aronia melanocarpa
Berberis x *mentorensis*
Caragana arborescens
Carpinus betulus
Ceonothus americanus
Ceonothus ovatus
Cephalotaxus harringtonia
Chaenomeles speciosa
Cladrastus kentukea
Comptonia peregrina
Cornus racemosa
Corylus americana
Corylus colurna
Cotinus coggygria
Cotinus obovatus
Cotoneaster adpressus
Cotoneaster divaricatus
Cotoneaster salicifolius
Cratageus viridis 'Winter King'
Diervilla sessilifolia
Eleutherococcus sieboldianus
Eucommia ulmoides
Exochorda racemosa
Fagus sylvatica
Fraxinus pennsylvanica
Ginkgo biloba
Gymnocladus dioicus
Hammamelis mollis
Hammamelis vernalis
Hammamelis virginiana
Hammamelis x *intermedia* 'Arnold Promise'
Hydrangea arborescens
Hypericum species
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Koelreuteria paniculata
Kolkwitzia amabilis
Maackia amurensis
Malus species
Myrica pensylvanica
Ostrya virginiana
Oxydendrum arboreum
Parrotia persica
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Phellodendron amurense
Physocarpus opulifolius
Picea omorika
Picea orientalis
Pinus banksiana
Pinus bungeana
Pinus cembra
Pinus koraiensis
Pinus parviflora
Pinus strobus
Potentilla fruticosa
Prunus maritima
Prunus sargentii
Pyrus calleryana cultivars
Quercus acutissima
Quercus alba
Quercus bicolor
Quercus imbricaria
Quercus phellos
Quercus rubra
Quercus shumardii
Rhus aromatica 'Gro-Low'
Rhus chinensis
Rhus copallina
Sarcococca hookeriana
Sciadopitys verticillata
Sophora japonica
Spiraea x *bumalda* 'Anthony Waterer'
Spiraea x *vanhouttei*
Symphoricarpos x *chenaulti*
Syringa reticulata
Taxodium ascendens
Taxodium distichum
Tetradium daniellii
Thuja plicata
Tilia tomentosa
Ulmus parvifolia
Vaccinium angustifolium
Vaccinium corymbosum
Viburnum acerifolium
Viburnum dentatum
Viburnum prunifolium
Viburnum rhytidophyllum
Viburnum sieboldii
Viburnum x *rhytidophylloides*
Weigela florida
Xanthorhiza simplicissima

WET SOILS OR FLOODING

Acer rubrum
Aesculus parviflora
Aesculus pavia
Alnus incana
Alnus rugosa
Amelanchier arborea
Amelanchier canadensis
Amelanchier laevis
Aronia arbutifolia
Betula nigra
Calycanthus floridus
Carpinus caroliniana
Cercidiphyllum japonicum
Chamaecyparis nootkatensis
Chamaecyparis obtusa
Chamaecyparis pisifera
Chamaecyparis thyoides
Chamaedaphne calyculata
Chionanthus retusus
Chionanthus virginicus
Clethra alnifolia
Clethra barbinervis

Cornus racemosa
Dirca palustris
Enkianthus campanulatus
Forsythia intermedia
Forsythia suspensa
Fothergilla gardenii
Fothergilla major
Hydrangea arborescens
Hydrangea macrophylla
Hydrangea paniculata
Hydrangea quercifolia
Ilex crenata
Ilex glabra
Ilex pedunculosa
Ilex verticillata
Ilex x *meserveae* hybrids
Itea virginica
Kalmia latifolia
Kolkwitzia amabilis
Larix kaempferi
Larix laricina
Ledum groenlandicum
Lindera benzoin
Liquidambar styraciflua
Liriodendron tulipifera
Magnolia virginiana
Metasequoia glyptostroboides
Nemopanthus mucronatus
Nyssa sylvatica
Phellodendron amurense
Pinus strobus
Quercus bicolor
Quercus palustris
Quercus phellos
Quercus shumardii
Rhus copallina
Stephanandra incisa 'Crispa'
Taxodium ascendens
Taxodium distichum
Thuja occidentalis
Thuja plicata
Vaccinium angustifolium
Vaccinium corymbosum
Vaccinium macrocarpon
Vaccinium vitis-idaea
Viburnum dentatum
Viburnum prunifolium
Xanthorhiza simplicissima

SHADE

Abelia x *grandiflora*
Acer ginnala
Acer griseum
Acer triflorum
Aesculus parviflora
Aesculus pavia
Amelanchier arborea
Amelanchier canadensis
Amelanchier laevis
Andromeda polifolia
Aralia spinosa
Aristolochia macrophylla
Carpinus caroliniana
Cephalotaxus harringtonia
Chamaecyparis obtusa
Chionanthus virginicus
Clethra alnifolia
Clethra barbinervis
Cornus kousa
Cornus mas
Cornus officinalis
Cornus racemosa
Cotoneaster salicifolius
Dirca palustris
Eleutherococcus sieboldianus
Enkianthus campanulatus
Fagus grandifolia
Fagus sylvatica
Halesia carolina
Halesia diptera
Hammamelis mollis
Hammamelis vernalis
Hammamelis virginiana
Hammamelis x *intermedia* 'Arnold Promise'
Hydrangea anomala subspecies *petiolaris*
Hydrangea arborescens
Hydrangea macrophylla
Hydrangea paniculata
Hydrangea quercifolia
Ilex crenata
Ilex glabra
Ilex pedunculosa
Ilex verticillata
Ilex x *meserveae* hybrids
Itea virginica
Kalmia latifolia
Leucothoe species
Lindera benzoin
Lonicera sempervirens
Magnolia virginiana
Mahonia aquifolium
Microbiota decussata
Myrica pensylvanica
Nemopanthus mucronatus
Ostrya virginiana
Pachysandra procumbens
Pachysandra terminalis
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Paxistima canbyi
Pieris floribunda
Pieris japonica
Pinus strobus
Rhododendron species & cultivars
Stephanandra incisa 'Crispa'
Styrax japonica
Taxus baccata 'Repandens'
Taxus cuspidata
Taxus x *media* cultivars
Thuja plicata
Thujopsis dolobrata
Tsuga diversifolia
Tsuga heterophylla
Vaccinium corymbosum
Viburnum acerifolium
Viburnum dentatum
Viburnum plicatum f. tomentosum
Viburnum prunifolium
Viburnum rhytidophyllum
Viburnum sargentii
Viburnum sieboldii
Viburnum trilobum
Viburnum x *rhytidophylloides*

SOIL SALT

Acer campestre
Acer ginnala
Acer griseum
Acer palmatum
Acer tataricum
Aesculus parviflora
Aesculus pavia
Amelanchier arborea
Amelanchier canadensis
Amelanchier laevis
Amorpha fruticosa
Arctostaphylos uva-ursi
Aronia arbutifolia
Aronia melanocarpa
Baccharis halimifolia
Betula nigra
Campsis radicans
Caragana arborescens
Carpinus caroliniana
Cercidiphyllum japonicum
Chamaecyparis nootkatensis
Chamaecyparis obtusa

Chamaecyparis pisifera
Chamaecyparis thyoides
Clethra alnifolia
Comptonia peregrina
Cotoneaster adpressus
Cotoneaster divaricatus
Cotoneaster salicifolius
Diervilla sessilifolia
Fraxinus pennsylvanica
Ginkgo biloba
Hydrangea anomala subspecies *petiolaris*
Hydrangea arborescens
Hydrangea macrophylla
Hydrangea paniculata
Hydrangea quercifolia
Ilex crenata
Ilex glabra
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Koelreuteria paniculata
Magnolia acuminata
Magnolia kobus
Magnolia virginiana
Magnolia x *loebneri*
Magnolia x *soulangiana*
Myrica pensylvanica
Nyssa sylvatica
Oxydendrum arboreum
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Phellodendron amurense
Potentilla fruticosa
Prunus maritima
Prunus sargentii
Pyracantha coccinea
Quercus acutissima
Quercus alba
Quercus bicolor
Quercus rubra
Rhus aromatica 'Gro-Low'
Rhus chinensis
Rhus copallina
Sciadopitys verticillata
Sophora japonica
Syringa meyeri
Syringa microphylla
Syringa patula
Syringa reticulata
Taxodium distichum
Taxus baccata 'Repandens'
Taxus cuspidata
Taxus x *media* cultivars
Thuja occidentalis
Ulmus parvifolia
Vaccinium corymbosum
Viburnum dentatum
Viburnum prunifolium
Viburnum sieboldii

OCEANSIDE, ROADSIDE OR AERIAL SALT

Amelanchier canadensis
Amorpha fruticosa
Arctostaphylos uva-ursi
Aronia arbutifolia
Aronia melanocarpa
Baccharis halimifolia
Campsis radicans
Caragana arborescens
Chamaecyparis pisifera
Clethra alnifolia
Clethra barbinervis
Comptonia peregrina
Cotoneaster adpressus
Cotoneaster divaricatus
Cotoneaster salicifolius
Fraxinus pennsylvanica
Halesia carolina
Halesia diptera
Hydrangea arborescens
Hydrangea macrophylla
Ilex glabra
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Myrica pensylvanica
Nyssa sylvatica
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Pieris floribunda
Pinus cembra
Pinus parviflora
Potentilla fruticosa
Prunus maritima
Pyracantha coccinea
Quercus alba
Rhus aromatica 'Gro-Low'
Rhus chinensis
Rhus copallina
Sophora japonica
Spiraea x *bumalda* 'Anthony Waterer'
Spiraea x *vanhouttei*
Taxus baccata 'Repandens'
Taxus cuspidata
Taxus x *media* cultivars
Ulmus parvifolia
Vaccinium corymbosum
Viburnum dentatum

WIND

Abies concolor
Acer ginnala
Acer truncatum
Caragana arborescens
Cephalotaxus harringtonia
Chamaecyparis pisifera
Comptonia peregrina
Cornus racemosa
Corylus colurna
Cotoneaster divaricatus
Crataegus viridis 'Winter King'
Diervilla sessilifolia
Eleutherococcus sieboldianus
Eucommia ulmoides
Fraxinus pennsylvanica
Ginkgo biloba
Gymnocladus dioicus
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Ledum groenlandicum
Microbiota decussata
Myrica pensylvanica
Parrotia persica
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Pinus banksiana
Pinus cembra
Pinus parviflora
Potentilla fruticosa
Prunus maritima
Ptelea trifoliata
Pyrus calleryana cultivars
Quercus alba
Quercus bicolor
Rhus aromatica 'Gro-Low'
Symphoricarpos x *chenaulti*
Taxodium ascendens
Taxodium distichum
Vaccinium corymbosum

NATIVE SPECIES

Acer pensylvanicum
Acer rubrum
Aesculus parviflora
Aesculus pavia

Alnus rugosa
Amelanchier arborea
Amelanchier canadensis
Amelanchier laevis
Amorpha fruticosa
Andromeda polifolia
Aralia spinosa
Arctostaphylos uva-ursi
Aronia arbutifolia
Aronia melanocarpa
Baccharis halimifolia
Betula alleghanensis
Betula alleghaniensis
Betula lenta
Betula nigra
Calycanthus floridus
Campsis radicans
Carpinus caroliniana
Ceonothus americanus
Ceonothus ovatus
Cercis canadensis
Chamaecyparis thyoides
Chamaedaphne calyculata
Chionanthus virginicus
Cladrastus kentukea
Clethra alnifolia
Comptonia peregrina
Cornus alternifolia
Cornus racemosa
Corylus americana
Cotinus obovatus
Cratageus viridis 'Winter King'
Diervilla sessilifolia
Dirca palustris
Fagus grandifolia
Fothergilla gardenii
Fothergilla major
Franklinia alatamaha
Fraxinus pennsylvanica
Gymnocladus dioicus
Halesia carolina
Halesia diptera
Hammamelis vernalis
Hammamelis virginiana
Hydrangea arborescens
Hydrangea quercifolia
Hypericum species
Ilex glabra
Ilex verticillata
Itea virginica
Juniperus virginiana
Kalmia latifolia
Larix laricina
Ledum groenlandicum
Leucothoe species
Lindera benzoin
Liquidambar styraciflua
Liriodendron tulipifera
Magnolia acuminata
Magnolia virginiana
Myrica pensylvanica
Nemopanthus mucronatus
Nyssa sylvatica
Ostrya virginiana
Oxydendrum arboreum
Pachysandra procumbens
Parthenocissus quinquifolia
Paxistima canbyi
Physocarpus opulifolius
Picea glauca
Pieris floribunda
Pinus banksiana
Pinus strobus
Potentilla fruticosa
Prunus maritima
Ptelea trifoliata
Quercus alba
Quercus bicolor
Quercus imbricaria
Quercus macrocarpa
Quercus palustris
Quercus phellos
Quercus rubra
Quercus shumardii
Quercus velutina
Rhododendron species & cultivars
Rhus aromatica 'Gro-Low'
Rhus copallina
Sassafras albidum
Taxodium distichum
Tilia americana
Vaccinium angustifolium
Vaccinium corymbosum
Vaccinium macrocarpon
Vaccinium vitis-idaea
Viburnum acerifolium
Viburnum cassinoides
Viburnum dentatum
Viburnum lentago
Viburnum prunifolium
Viburnum trilobum
Xanthorhiza simplicissima

TOLERANT OF pH 4.5 OR LOWER

Arctostaphylos uva-ursi
Chamaecyparis thyoides
Comptonia peregrina
Enkianthus campanulatus
Hydrangea macrophylla
Ilex crenata
Ilex glabra
Ilex pedunculosa
Ilex verticillata
Ilex x *meserveae* hybrids
Kalmia latifolia
Ledum groenlandicum
Leucothoe species
Myrica pensylvanica
Nemopanthus mucronatus
Vaccinium angustifolium
Vaccinium corymbosum
Vaccinium macrocarpon
Vaccinium vitis-idaea

TOLERANT OF pH 5.0

Abelia x *grandiflora*
Abies cilicica
Abies concolor
Abies homolepis
Abies veitchii
Acer buergerianum
Acer rubrum
Acer triflorum
Amelanchier arborea
Amelanchier canadensis
Andromeda polifolia
Aronia arbutifolia
Aronia melanocarpa
Berberis x *chenaultii*
Carpinus betulus
Carpinus caroliniana
Chamaecyparis obtusa
Chamaecyparis pisifera
Chionanthus virginicus
Clethra alnifolia
Enkianthus campanulatus
Fagus grandifolia
Fagus sylvatica
Forsythia intermedia
Forsythia suspensa
Fothergilla gardenii
Fothergilla major
Franklinia alatamaha
Halesia carolina
Halesia diptera
Hammamelis mollis
Hammamelis vernalis
Hammamelis virginiana
Hammamelis x *intermedia*

'Arnold Promise'
Juniperus virginiana
Larix kaempferi
Larix laricina
Magnolia acuminata
Magnolia kobus var. *stellata*
Magnolia virginiana
Magnolia x *soulangiana*
Malus species
Nemopanthus mucronatus
Nyssa sylvatica
Ostrya virginiana
Oxydendrum arboreum
Pachysandra procumbens
Pachysandra terminalis
Physocarpus opulifolius
Pieris floribunda
Pinus banksiana
Pinus cembra
Pinus koraiensis
Pinus strobus
Pterostyrax hispida
Quercus acutissima
Quercus alba
Quercus bicolor
Quercus palustris
Quercus phellos
Quercus rubra
Quercus velutina
Rhododendron species & cultivars
Sassafras albidum
Stewartia koreana
Stewartia pseudocamellia
Styrax japonica
Taxodium ascendens
Taxodium distichum
Viburnum prunifolium

TOLERANT OF pH 7.5 OR HIGHER

Abies cilicica
Abies concolor
Acer buergerianum
Acer campestre
Acer ginnala
Acer griseum
Acer palmatum
Acer tataricum
Aesculus pavia
Alnus incana
Amelanchier arborea
Amelanchier canadensis
Amelanchier laevis
Amorpha fruticosa
Aralia spinosa
Berberis julianae
Berberis verruculosa
Berberis x *mentorensis*
Buxus microphylla
Buxus sempervirens
Caragana arborescens
Carpinus betulus
Cedrus atlantica
Cercidiphyllum japonicum
Cercis canadensis
Chionanthus retusus
Chionanthus virginicus
Cladrastus kentukea
Clematis species
Cornus kousa
Cornus mas
Cornus officinalis
Cornus racemosa
Corylus americana
Corylus colurna
Cotinus coggygria
Cotinus obovatus
Cotoneaster adpressus
Cotoneaster divaricatus
Cotoneaster salicifolius
Cratageus viridis 'Winter King'
Diervilla sessilifolia
Eleutherococcus sieboldianus
Eucommia ulmoides
Forsythia intermedia
Forsythia suspensa
Fraxinus pennsylvanica
Ginkgo biloba
Gymnocladus dioicus
Hammamelis vernalis
Hovenia dulcis
Hydrangea arborescens
Hydrangea macrophylla
Hydrangea paniculata
Hydrangea quercifolia
Hypericum species
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Kalopanax septemlobus
Koelreuteria paniculata
Kolkwitzia amabilis
Lonicera sempervirens
Maackia amurensis
Magnolia acuminata
Magnolia kobus
Magnolia kobus var. *stellata*
Magnolia x *loebneri*
Malus species
Ostrya virginiana
Parrotia persica
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Paxistima canbyi
Phellodendron amurense
Physocarpus opulifolius
Picea omorika
Picea orientalis
Pieris floribunda
Pinus bungeana
Pinus koraiensis
Pinus parviflora
Pinus strobus
Potentilla fruticosa
Prunus maackii
Prunus maritima
Prunus sargentii
Prunus subhirtella 'Autumnalis'
Ptelea trifoliata
Pyrus calleryana cultivars
Quercus bicolor
Quercus macrocarpa
Quercus phellos
Rhus aromatica 'Gro-Low'
Rhus chinensis
Rhus copallina
Sophora japonica
Sorbus alnifolia
Spiraea x *bumalda* 'Anthony Waterer'
Spiraea x *vanhouttei*
Stephanandra incisa 'Crispa'
Symphoricarpos x *chenaulti*
Syringa meyeri
Syringa microphylla
Syringa patula
Syringa reticulata
Taxodium distichum
Taxus baccata 'Repandens'
Taxus cuspidata
Taxus x *media* cultivars
Tetradium daniellii
Ulmus parvifolia
Viburnum dentatum
Viburnum farreri
Viburnum plicatum f. tomentosum
Viburnum prunifolium
Viburnum rhytidophyllum
Viburnum sargentii
Viburnum sieboldii

Viburnum trilobum
Viburnum wrightii
Viburnum x *juddii*
Viburnum x *rhytidophylloides*
Weigela florida

USEFUL BENEATH POWER LINES

Acer buergerianum
Acer campestre
Acer ginnala
Acer griseum
Acer tataricum
Acer triflorum
Acer truncatum
Alnus incana
Alnus rugosa
Amelanchier canadensis
Amelanchier laevis
Carpinus caroliniana
Cercis canadensis
Chionanthus retusus
Cornus kousa
Cornus mas
Cornus officinalis
Cotinus coggygria
Crataegus viridis 'Winter King'
Enkianthus campanulatus
Halesia carolina
Halesia diptera
Hammamelis mollis
Hammamelis vernalis
Hammamelis virginiana
Hammamelis x *intermedia* 'Arnold Promise'
Hovenia dulcis
Koelreuteria paniculata
Maackia amurensis
Magnolia kobus var. *stellata*
Magnolia virginiana
Magnolia x *loebneri*
Magnolia x *soulangiana*
Malus species
Ostrya virginiana
Parrotia persica
Prunus maackii
Prunus maritima
Prunus sargentii
Prunus subhirtella 'Autumnalis'
Ptelea trifoliata
Pterostyrax hispida
Pyrus calleryana cultivars
Sorbus alnifolia
Stewartia koreana
Stewartia pseudocamellia
Styrax japonica
Syringa reticulata
Tetradium daniellii

TOLERANT OF URBAN CONDITIONS

Abies concolor
Acer buergerianum
Acer campestre
Acer ginnala
Acer tataricum
Acer triflorum
Amelanchier canadensis
Amorpha fruticosa
Aralia spinosa
Baccharis halimifolia
Betula nigra
Caragana arborescens
Carpinus betulus
Carpinus caroliniana
Cedrus atlantica
Cephalotaxus harringtonia
Cercidiphyllum japonicum
Corylus colurna
Cotinus coggygria
Cotinus obovatus
Crataegus viridis 'Winter King'
Eleutherococcus sieboldianus
Eucommia ulmoides
Forsythia intermedia
Forsythia suspensa
Fraxinus pennsylvanica
Ginkgo biloba
Gymnocladus dioicus
Hammamelis virginiana
Hydrangea paniculata
Ilex crenata
Juniperus chinensis
Juniperus conferta
Juniperus virginiana
Koelreuteria paniculata
Maackia amurensis
Magnolia kobus var. *stellata*
Magnolia x *loebneri*
Magnolia x *soulangiana*
Malus species
Nyssa sylvatica
Ostrya virginiana
Pachysandra terminalis
Parrotia persica
Parthenocissus quinquifolia
Parthenocissus tricuspidata
Picea omorika
Picea orientalis
Potentilla fruticosa
Pyrus calleryana cultivars
Quercus acutissima
Quercus bicolor
Quercus imbricaria
Quercus palustris
Quercus phellos
Quercus rubra
Quercus shumardii
Sophora japonica
Sorbus alnifolia
Syringa reticulata
Taxodium ascendens
Taxodium distichum
Taxus cuspidata
Tilia cordata
Tilia tomentosa
Ulmus parvifolia
Weigela florida

APPENDIX THREE

Cross-reference for Demanding Situations

SPECIES	DR	LO	NA	OC	P45	P50	P75	SH	SP	SS	UR	WI	WT
Abelia x grandiflora						x		X					
Abies cilicica						x	x						
Abies concolor	x					x	x				x	x	
Abies homolepis						x							
Abies veitchii						x							
Acer buergerianum		x				x	x				x		
Acer campestre	x	x					x			x	x		
Acer ginnala	x	x					x	x		x	x	x	
Acer griseum		x					x	x	x	x			
Acer palmatum							x			x			
Acer pensylvanicum			x										
Acer rubrum			x			x			x				x
Acer tataricum	x	x					x			x	x		
Acer triflorum		x				x		x			x		
Acer truncatum	x	x										x	
Aesculus parviflora			x					x	x	x			x
Aesculus pavia	x		x				x	x	x	x			x
Alnus incana		x					x						x
Alnus rugosa		x	x										x
Amelanchier arborea			x			x	x	x		x			x
Amelanchier canadensis		x	x	x		x	x	x		x	x		x
Amelanchier laevis		x	x				x	x		x			x
Amorpha fruticosa	x		x	x			x			x	x		
Andromeda polifolia			x			x		x					
Aralia spinosa	x		x				x	x			x		
Arctostaphylos uva-ursi	x		x	x	x				x	x			
Aristolochia macrophylla								x					
Aronia arbutifolia	x		x	x		x				x			x
Aronia melanocarpa	x		x	x		x				x			
Baccharis halimifolia			x	x						x	x		
Berberis julianae							x						
Berberis verriculosa							x						

SPECIES	DR	LO	NA	OC	P45	P50	P75	SH	SP	SS	UR	WI	WT
Berberis x *chenaultii*						x							
Berberis x *mentorensis*	x						x						
Betula alleghanensis			x										
Betula lenta			x										
Betula nigra			x						x	x	x		x
Buxus sempervirens							x						
Calycanthus floridus			x										x
Campsis radicans			x	x						x			
Caragana arborescens	x			x			x			x	x	x	
Carpinus betulus	x					x	x		x		x		
Carpinus caroliniana		x	x			x		x	x	x	x		x
Cedrus atlantica							x		x		x		
Cedrus libani									x				
Ceonothus species	x		x										
Cephalotaxus harringtonia	x							x			x	x	
Cercidiphyllum japonicum							x		x	x	x		x
Cercis canadensis		x	x				x						
Chaenomeles speciosa	x												
Chamaecyparis nootkatensis										x			x
Chamaecyparis obtusa						x		x		x			x
Chamaecyparis pisifera				x		x				x		x	x
Chamaecyparis thyoides			x		x					x			x
Chamaedaphne calyculata			x										x
Chionanthus retusus		x					x		x				x
Chionanthus virginicus			x			x	x	x	x				x
Cladrastus kentukea	x		x				x		x				
Clematis species							x						
Clethra alnifolia			x	x		x		x		x			x
Clethra barbinervis				x				x					x
Comptonia peregrina	x		x	x	x					x		x	
Cornus alternifolia			x										
Cornus kousa		x					x	x					
Cornus mas		x					x	x					
Cornus officinalis		x					x	x					

DR = drought or dry soils
LO = useful beneath powerlines
NA = native species
OC = oceanside, roadside or aerial salt
P45 = tolerant of pH 4.5 or below
P50 = tolerant of pH 5.0
P75 = tolerant of pH 7.5 or higher
SH = shade
SP = best planted in spring
SS = soil salt
UR = urban conditions
WI = wind
WT = wet soils or flooding

SPECIES	DR	LO	NA	OC	P45	P50	P75	SH	SP	SS	UR	WI	WT
Cornus racemosa	x		x				x	x				x	x
Corylus colurna	x						x				x	x	
Cotinus coggygria	x	x					x				x		
Cotinus obovatus	x		x				x				x		
Cotoneaster adpressus	x			x			x			x			
Cotoneaster divaricatus	x			x			x			x		x	
Cotoneaster salicifolius	x			x			x	x		x			
Cratageus viridis 'Winter King'	x	x	x				x				x	x	
Daphne species									x				
Diervilla sessilifolia	x		x				x			x		x	
Dirca palustris			x					x					x
Eleutherococcus sieboldianus	x						x	x			x	x	
Enkianthus campanulatus		x			x	x		x					x
Eucommia ulmoides	x						x				x	x	
Exochorda racemosa	x								x				
Fagus grandifolia			x			x		x	x				
Fagus sylvatica	x					x		x	x				
Forsythia intermedia						x	x				x		x
Forsythia suspensa						x	x				x		x
Fothergilla gardenii			x			x							x
Fothergilla major			x			x							x
Franklinia alatamaha			x			x							
Fraxinus pennsylvanica	x		x	x			x			x	x	x	
Ginkgo biloba	x						x			x	x	x	
Gymnocladus dioicus	x		x				x				x	x	
Halesia carolina		x	x	x		x		x	x				
Halesia diptera		x	x	x		x		x	x				
Hammamelis mollis	x	x				x		x					
Hammamelis vernalis	x	x	x			x	x	x					
Hammamelis virginiana	x	x	x			x		x			x		
Hammamelis x *intermedia* 'Arnold Promise'	x	x				x		x					
Hovenia dulcis		x					x						
Hydrangea anomala subspecies *petiolaris*								x		x			
Hydrangea arborescens	x		x	x			x	x		x			x
Hydrangea macrophylla				x	x		x	x		x			x
Hydrangea paniculata							x	x		x	x		x
Hydrangea quercifolia			x				x	x		x			x
Hypericum species	x		x				x						

SPECIES	DR	LO	NA	OC	P45	P50	P75	SH	SP	SS	UR	WI	WT
Ilex crenata					x			x	x	x	x		x
Ilex glabra			x	x	x			x	x	x			x
Ilex pedunculosa					x			x	x				x
Ilex verticillata			x		x			x	x				x
Ilex x *meserveae* hybrids					x			x	x				x
Itea virginica			x					x					x
Juniperus chinensis	x			x			x			x	x	x	
Juniperus conferta	x			x			x			x	x	x	
Juniperus virginiana	x		x	x		x	x			x	x	x	
Kalmia angustifolia			x		x			x	x				x
Kalmia latifolia			x		x			x	x				x
Kalopanax septemlobus							x						
Koelreuteria paniculata	x	x					x		x	x	x		
Kolkwitzia amabilis	x						x						x
Larix kaempferi						x							x
Larix laricina			x			x							x
Ledum groenlandicum			x		x							x	x
Leucothoe species			x		x			x					
Lindera benzoin			x					x	x				x
Liquidambar styraciflua			x						x				x
Liriodendron tulipifera			x						x				x
Lonicera sempervirens							x	x					
Maackia amurensis	x	x					x				x		
Magnolia acuminata			x			x	x		x	x			
Magnolia kobus							x		x	x			
Magnolia kobus var. *stellata*		x				x	x		x		x		
Magnolia virginiana		x	x			x		x	x	x			x
Magnolia x *loebneri*		x					x		x	x	x		
Magnolia x *soulangiana*		x				x			x	x	x		
Mahonia aquifolium								x					
Malus species	x	x				x	x		x		x		
Metasequoia glyptostroboides													x
Microbiota decussata								x				x	
Myrica pensylvanica	x		x	x	x			x		x		x	

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Nemopanthus mucronatus			x		x	x							x
Nyssa sylvatica			x	x		x			x	x	x		x
Ostrya virginiana	x	x	x			x	x	x	x		x		
Oxydendrum arboreum	x		x			x				x			
Pachysandra procumbens			x			x		x					
Pachysandra terminalis						x		x			x		
Parrotia persica	x	x					x		x		x	x	
Parthenocissus quinquifolia	x		x	x			x	x		x	x	x	
Parthenocissus tricuspidata	x			x			x	x		x	x	x	
Paxistima canbyi			x				x	x					
Phellodendron amurense	x						x			x			x
Physocarpus opulifolius	x		x			x	x						
Picea glauca			x										
Picea omorika	x						x				x		
Picea orientalis	x						x				x		
Pieris floribunda			x	x		x	x	x					
Pieris japonica								x					
Pinus banksiana	x		x			x						x	
Pinus bungeana	x						x						
Pinus cembra	x			x		x						x	
Pinus koraiensis	x					x	x						
Pinus parviflora	x			x			x					x	
Pinus strobus	x		x			x	x	x					x
Potentilla fruticosa	x		x	x			x			x	x	x	
Prunus maackii		x					x						
Prunus maritima	x	x	x	x			x			x		x	
Prunus sargentii	x	x					x			x			
Prunus subhirtella 'Autumnalis'		x					x						
Ptelea trifoliata		x	x				x					x	
Pterostyrax hispida		x				x							
Pyracantha coccinea				x						x			
Pyrus calleryana cultivars	x	x					x		x		x	x	
Quercus acutissima	x					x			x	x	x		
Quercus alba	x		x	x		x			x	x		x	
Quercus bicolor	x		x			x	x		x	x	x	x	x
Quercus imbricaria	x		x								x		
Quercus macrocarpa			x				x		x				
Quercus palustris			x			x					x		x

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Quercus phellos	x		x			x	x		x		x		x
Quercus rubra	x		x			x			x	x	x		
Quercus shumardii	x		x								x		x
Quercus velutina			x			x			x				
Rhododendron species & cultivars			x			x		x	x				
Rhodotypos scandens											x		
Rhus aromatica 'Gro-Low'	x		x	x			x			x		x	
Rhus chinensis	x			x			x			x			
Rhus copallina	x		x	x			x			x			x
Sarcococca hookeriana	x												
Sassafras albidum			x			x			x				
Sciadopitys verticillata	x									x			
Sophora japonica	x			x			x			x	x		
Sorbus alnifolia		x					x				x		
Spiraea x *bumalda* 'Anthony Waterer'	x			x			x						
Spiraea x *vanhouttei*	x			x			x						
Stephanandra incisa 'Crispa'							x	x					x
Stewartia koreana		x				x			x				
Stewartia pseudocamellia		x				x			x				
Styrax japonica		x				x		x					
Symphoricarpos x *chenaulti*	x						x					x	
Syringa meyeri							x			x			
Syringa microphylla							x			x			
Syringa patula							x			x			
Syringa reticulata	x	x					x			x	x		
Taxodium ascendens	x					x					x	x	x
Taxodium distichum	x		x			x	x			x	x	x	x
Taxus baccata 'Repandens'				x			x	x		x			
Taxus cuspidata				x			x	x		x	x		
Taxus x *media* cultivars				x			x	x		x			
Tetradium daniellii	x	x					x						
Thuja occidentalis										x			x
Thuja plicata	x							x					x
Thujopsis dolobrata								x					

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Tilia americana			x										
Tilia cordata											x		
Tilia tomentosa	x										x		
Tsuga diversifolia								x					
Tsuga heterophylla								x					
Ulmus parvifolia	x			x			x			x	x		
Vaccinium angustifolium	x		x		x								x
Vaccinium corymbosum	x		x	x	x			x		x		x	x
Vaccinium macrocarpon			x		x								x
Vaccinium vitis-idaea			x		x								x
Viburnum acerifolium	x		x					x					
Viburnum cassinoides			x										
Viburnum dentatum	x		x	x			x	x		x			x
Viburnum farreri							x						
Viburnum lentago			x										
Viburnum plicatum var. *tomentosum*							x	x					
Viburnum prunifolium	x		x			x	x	x		x			x
Viburnum rhytidophyllum	x						x	x					
Viburnum sargentii							x	x					
Viburnum sieboldii	x						x	x		x			
Viburnum trilobum			x				x	x					
Viburnum wrightii							x						
Viburnum x *juddii*							x						
Viburnum x *rhytidophylloides*	x						x	x					
Weigela florida	x						x				x		
Xanthorhiza simplicissima	x		x										x

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