

Alternatives to invasive or potentially invasive exotic species

Compiled and with an introduction by William Cullina, NEWFS Nursery Manager.**

In the last 300 years, North America has seen a tremendous influx of non-native plant species as a result of human activities. As an example: of the 2814 species of plants growing wild in Massachusetts, fully 45% (1276 species) have been introduced (either on purpose or by accident) from other parts of the globe.¹ Many of these are agricultural weeds that began arriving in grain or ship's ballast soon after European colonists came here in the early 1600's. Others were introduced by horticulturists or the federal government for use in gardens or soil stabilization, reforestation, and the like. It is impossible to know what effect this monumental immigration has had on native plants and animals. Certainly, of the thousands and thousands of plants introduced in the US and Canada from abroad, only a small number (estimates range from 3-7%) are thought to pose a serious threat to native ecosystems. These problem few are quite a problem, however. These invasive exotics have few if any natural predators to keep them in check, instead running rampant and displacing entire communities of native plants as well as the insects, fungi, birds, mammals, reptiles, bacteria, etc that have come to depend on them. Be it Kudzu in the South, Eucalyptus in California, Brazilian Pepper in Florida, Oriental Bittersweet in the Northeast, or Himalayan blackberry in the Northwest, invasive species have the potential to completely alter habitats, disrupt natural cycles of disturbance and succession, and most importantly, greatly decrease overall biodiversity, pushing rare species to the brink of extinction. Many ecologists now feel that invasive species represent the greatest current and future threat to native plant and animal species worldwide – greater even than human population growth, land development, and pollution.

It is high time that we horticulturists recognize our responsibility to both cease the importation and introduction of new and potentially invasive exotic plants *and* to stop growing and planting known or suspected invasives *regardless* of their ornamentalty or consumer demand. I believe that we need to adopt the precautionary principle as far as plant introductions are concerned, and assume a species (including all of its cultivars) is invasive until proven otherwise (rather than the current approach of "innocent until proven guilty"). At least let's not make this situation any worse.

Toward this end, I have compiled a list of invasive or potentially invasive woody exotics compiled from the Plant Conservation Alliance's Alien Plant Working Group website www.nps.gov/plants/alien/index.htm together with possible alternatives among our native species. I have tried to find substitutes that share similar ornamental features and adaptability, while lacking invasive tendencies. However, keep in mind that the freedom from pests and diseases and thus ease of culture that make some "grow anywhere" exotic species so popular in the landscape industry is the same resiliency that allows them to escape and run rampant, too. There are very few native plants as problem-free as some of the worst invaders, which is the very reason these are not invasive as well. Furthermore, there are a few native species, such as Black Locust, some of the Junipers, and Cypresses, that have the potential to become moderately invasive if planted far outside their native range. So, instead of searching for a few species that will grow anywhere – idiot-proof plants, if you will – we, as gardeners and landscape professionals need to broaden our horizons quite a bit. We have an amazing, amazing native flora here, which can fill our gardens and wild lands with beauty, diversity, and life if we just take the time to notice and learn.

**A version of this material was originally published as part of "*Native Trees, Shrubs & Vines: A Guide to Using, Growing, and Propagating North American Woody Plants*" by William Cullina, Houghton Mifflin, 2002.

¹ Sorrie and Somers, *The Vascular Plants of Massachusetts: A County Checklist* p.xiii

Invasive or Potentially Invasive Exotics Possible Native Substitute(s)

<p><i>Acer platanoides</i> (Norway Maple) <i>Acer pseudoplatanus</i> (Sycamore Maple)</p>	<p><i>Acer leucoderme</i> (Chalk Maple) <i>Acer macrophyllum</i> (Bigleaf Maple) <i>Acer rubrum</i> (Red Maple) <i>Aesculus flava (octandra)</i> (Yellow Buckeye) <i>Aralia spinosa</i> (Hercules Club) <i>Betula alleghaniensis</i> (Yellow Birch) <i>Celtis laevigata</i> (Sugarberry) <i>Cladrastis kentuckea</i> (Yellowwood) <i>Fagus grandifolia</i> (American Beech) <i>Fraxinus pensylvanica</i> (Green Ash) <i>Gymnocladus dioicus</i> (Kentucky Coffeetree) <i>Liquidambar styraciflua</i> (Sweetgum) <i>Liriodendron tulipifera</i> (Tulip Poplar) <i>Quercus bicolor</i> (Swamp White Oak) <i>Quercus palustris</i> (Pin Oak)</p>
<p><i>Ailanthus altissima</i> (Tree of Heaven)</p>	<p><i>Acer negundo</i> (Box Elder) <i>Amelanchier arborea</i> (Downy Serviceberry) <i>Amelanchier laevis (Allegheny Serviceberry)</i> <i>Carya illinoensis</i> (Pecan) <i>Diospyros virginiana</i> (Persimmon) <i>Gymnocladus dioicus</i> (Kentucky Coffeetree) <i>Juglans nigra</i> (Black Walnut) <i>Juglans microcarpa</i> (Little Walnut) <i>Maclura pomifera</i> (Osage Orange) <i>Ostrya virginiana</i> (Ironwood) <i>Rhus typhina</i> (Staghorn Sumac) <i>Sassafras albidum</i> (Sassafras)</p>
<p><i>Akebia quinata</i> (Akebia)</p>	<p><i>Bignonia capreolata</i> (Cross Vine) <i>Gelsemium</i> spp. (Jessamine) <i>Wisteria frutescens</i> (American Wisiteria)</p>
<p><i>Albizia julibrissin</i> (Silk Tree)</p>	<p><i>Cercis canadensis</i> vars. (Redbud) <i>Gleditsia triacanthos</i> (Honeylocust) <i>Gymnocladus dioicus</i> (Kentucky Coffeetree)</p>
<p><i>Alnus glutinosa</i> (European Black Alder)</p>	<p><i>Alnus incana</i> (SpeckledAlder) <i>Alnus serrulata</i> (Smooth Alder) <i>Fothergilla major</i> (Large Fothergilla)</p>
<p><i>Ampelopsis brevipedunculata</i> (Porcelainberry)</p>	<p><i>Aristolochia tomentosa</i> (Pipevine) <i>Gelsemium sempervirens</i> (Carolina Jessamine) <i>Lonicera sempervirens</i> (Trumpet Honeysuckle) <i>Parthenocissus quinquefolia</i> (Virginia Creeper)</p>
<p><i>Berberis thunbergii</i> (Japanese Barberry) <i>Berberis vulgaris</i> (European Barberry)</p>	<p><i>Callicarpa americana</i> (Beautyberry) <i>Cercocarpus</i> spp. (Mountain Mahogany) <i>Elaeagnus commutatus</i> (Silverberry) <i>Itea virginica</i> (Sweetspire) <i>Myrica</i> spp. (Bayberry) <i>Rhododendron vaseyi</i> (Roseshell Azalea) <i>Shepardia</i> spp. (Buffaloberry) <i>Symphoricarpos orbiculatus</i> (Coralberry) <i>Symphoricarpos X chenaultii</i> (Chenault Snowberry) <i>Vaccinium angustifolium</i> (Lowbush Blueberry) <i>Vaccinium myrtilloides</i> (Velvetleaf Blueberry)</p>

<i>Betula pendula</i> (European White Birch)	<i>Betula nigra</i> (River Birch) <i>Betula papyrifera</i> (Paper Birch)
<i>Buddleia davidii</i> (Butterfly Bush) <i>B. alternifolia</i> (Alternate-leaved Butterfly Bush)	<i>Aesculus parviflora</i> (Bottlebrush Buckeye) <i>Callicarpa americana</i> (American Beautyberry) <i>Ceanothus</i> spp. (California Lilac) <i>Clethra alnifolia</i> (Summersweet) <i>Cyrilla racemiflora</i> (Titi) <i>Diervilla</i> spp. (Bush-honeysuckle) <i>Hydrangea arborescens</i> (Wild Hydrangea) <i>Hypericum</i> spp. (St. John's Wort) <i>Itea virginiana</i> (Sweetspire) <i>Oxydendrum arboreum</i> (Sourwood) <i>Rhododendron</i> spp. (Azalea) <i>Sambucus</i> spp. (Elderberry) <i>Spiraea</i> spp. (Meadowsweet) <i>Symphoricarpos</i> spp. (Snowberry) <i>Viburnum</i> spp. (Viburnum)
<i>Celastrus orbiculatus</i> (Oriental Bittersweet)	<i>Celastrus scandens</i> (American Bittersweet) <i>Parthenocissus quinquefolia</i> (Virginia Creeper)
<i>Crataegus monogyna</i> (English Hawthorn)	<i>Crataegus phaenopyrum</i> (Washington Hawthorn) <i>Crataegus viridis</i> (Green Hawthorn)
<i>Cytissus scoparius</i> (Scotch broom)	<i>Ceanothus</i> spp. (California Lilac) Ephedra spp. (Mormon Tea) Myrica spp. (Bayberry) Prunus maritima (Beach Plum)
<i>Elaeagnus angustifolia</i> (Russian Olive) <i>E. pungens</i> (Thorny Elaeagnus) <i>E. umbellata</i> , (Autumn Olive)	<i>Ceanothus</i> spp. (Ceanothus) <i>Cercocarpus</i> spp. (Mountain Mahogany) <i>Chionanthus virginicus</i> (Fringetree) <i>Eleagnus commutatus</i> (Silverberry) <i>Myrica</i> spp. (Bayberry) <i>Osmanthus americanus</i> (Wild Olive) <i>Prunus americana</i> (Wild Plum) <i>Prunus maritima</i> (Beach Plum) <i>Prunus monsoniana</i> (Wildgoose Plum) <i>Quercus ilicifolia</i> (Scrub Oak) <i>Shepardia canadensis</i> and <i>argentea</i> (Silverberry) <i>Styrax americanus</i> (American Snowbell) <i>Styrax platanifolius</i> (Sycamore-leaf Snowbell) <i>Viburnum prunifolium</i> (Possumhaw)
<i>Eucalyptus globulus</i> (Tasmanian Blue Gum)	<i>Arbutus menziesii</i> (Pacific Mandrone) <i>Calocedrus decurrens</i> (Incense Cedar) <i>Quercus lobata</i> (Valley Oak) <i>Sequoiadendron giganteum</i> (Giant Sequoia)
<i>Euonymus alatus</i> (Burning Bush)	<i>Amelanchier bartramii</i> (Mountain Serviceberry) <i>Aronia</i> spp. (Chokeberry) <i>Clethra alnifolia</i> (Summersweet) <i>Cornus</i> spp. (Dogwood)

	<p><i>Cotinus obovatus</i> (American Smoketree) <i>Itea virginica</i> (Sweetspire) <i>Ilex</i> (deciduous spp.) (Holly) <i>Lindera benzoin</i> (Spicebush) <i>Vaccinium corymbosum</i> (Highbush Blueberry) <i>Vaccinium elliotii</i> ((Southern Highbush Blueberry) <i>Viburnum nudum</i> (Witherod) <i>Viburnum prunifolium</i> (Possum Haw)</p>
<i>Euonymus fortunei</i> (Wintercreeper)	(see suggestions under <i>Hedera helix</i>)
<i>Hedera helix</i> (English Ivy)	<p><i>Arctostaphylos uva-ursi</i> (Bearberry) <i>Arctostaphylos nevadensis</i> (Pinemat) <i>Decumaria barbara</i> (Wood Vamp) <i>Gaultheria shallon</i> (Salal) <i>Gelsemium sempervirens</i> (Carolina Jessamine) <i>Leucothoe axillaris</i> (Coast Leucothoe) <i>Leucothoe davisae</i> (Sierra Laurel) <i>Mahonia nervosa</i> (Longleaf Mahonia) <i>Mahonia repens</i> (Creeping Mahonia) <i>Parthenocissus quinquefolia</i> (Virginia Creeper) <i>Paxistima</i> spp. (Cliff Green) <i>Vaccinium crassifolium</i> (Creeping Blueberry) <i>Xanthorhiza simplicissima</i> (Yellowroot)</p>
<i>Ilex aquifolium</i> (English Holly)	<p><i>Arbutus menziesii</i> (Pacific Mandrone) <i>Ilex cassine</i> (Dahoon) <i>Ilex opaca</i> (American Holly)</p>
<i>Ligustrum</i> species (Privet)	<p><i>Agarista populifolia</i> (Florida Leucothoe) <i>Ilex cassine</i> (Dahoon) <i>Ilex glabra</i> (Inkberry Holly) <i>Ilex vomitoria</i> (Yaupon) <i>Illicium floridanum</i> (Anise) <i>Myrica</i> spp. (Bayberry) <i>Osmanthus americanus</i> (Wild Olive) <i>Prunus caroliniana</i> (Cherry Laurel) <i>Rhododendron minus</i> vars. (Carolina Rhododendron)</p>
<i>Lonicera japonica</i> (Japanese honeysuckle)	<p><i>Lonicera ciliosa</i> (Orange Honeysuckle) <i>Lonicera dioica</i> (Limber Honeysuckle) <i>Lonicera flava</i> (Yellow Honeysuckle) <i>Lonicera sempervirens</i> (Trumpet Honeysuckle)</p>
<p><i>Lonicera maackii</i> (Amur Honeysuckle) <i>Lonicera morrowii</i> (Morrow's Honeysuckle) <i>Lonicera tatarica</i> (Tatarian Honeysuckle)</p>	<p><i>Aesculus parvifolia</i> (Bottlebrush Buckeye) <i>Aesculus sylvatica</i> (Painted Buckeye) <i>Amelanchier</i> spp. (Serviceberry) <i>Diervilla sessilifolia</i> (Southern Bush Honeysuckle) <i>Dirca palustris</i> (Leatherwood) <i>Ilex</i> (deciduous spp.) (Holly) <i>Lonicera involucrata</i> (Twinberry) <i>Nemopanthus mucronatus</i> (Mountain Holly) <i>Viburnum</i> spp. (Viburnum)</p>
<i>Paulownia tomentosa</i> (Empress Tree)	<p><i>Asimina triloba</i> (Paw Paw) <i>Catalpa</i> spp. (Catalpa) <i>Chionanthus virginicus</i> (Fringetree) <i>Magnolia acuminata</i> (Cucumbertree Magnolia)</p>

	<i>Magnolia macrophylla</i> (Bigleaf Magnolia) <i>Tilia americana</i> (Basswood)
<i>Populus alba</i> (White Poplar)	<i>Populus tremuloides</i> (Quaking Aspen)
<i>Rhamnus cathartica</i> (Common Buckthorn), <i>Rhamnus frangula</i> (Glossy Buckthorn)	<i>Amelanchier canadensis</i> (Shadbush) <i>Aronia</i> spp. (Chokeberry) <i>Crateagus</i> spp. (Hawthorn) <i>Cornus</i> spp. (Dogwood) <i>Hammamelis</i> spp. (Witchhazel) <i>Ilex</i> spp. (Holly) <i>Lindera benzoin</i> (Spicebush) <i>Maclura pomifera</i> (Osage Orange) <i>Nemopanthus mucronatus</i> (Mountain Holly) <i>Vaccinium corymbosum</i> (Highbush Blueberry) <i>Viburnum dentatum</i> (Arrowwood) <i>Viburnum lentago</i> (Nannyberry) <i>Viburnum nudum</i> (Witherod)
<i>Rosa multiflora</i> (Multiflora Rose)	<i>Rosa setigera</i> (Climbing Prairie Rose)
<i>Rosa rugosa</i> (Rugosa Rose)	<i>Rosa carolina</i> (Carolina Rose) <i>Rosa virginiana</i> (Virginia Rose) <i>Rosa acicularis</i> (Prickly Wild Rose)
<i>Rubus discolor</i> (Himalayan Blackberry) <i>Rubus phoenicolasius</i> (Wineberry)	<i>Rubus allegheniensis</i> (Allegheny Blackberry) <i>Rubus odoratus</i> (Flowering Raspberry) <i>Rubus occidentalis</i> (Blackcap Raspberry) <i>Rubus parviflorus</i> (Timbleberry) <i>Rubus spectabilis</i> (Salmonberry)
<i>Spiraea japonica</i> (Japanese Spirea)	<i>Ceanothus americanus</i> (New Jersey Tea) <i>Leiophyllum buxifolium</i> (Sand Myrtle) <i>Spiraea douglasii</i> (Douglas Spirea) <i>Spiraea spendens</i> (Mountain Spirea) <i>Spiraea tomentosa</i> (Steeplebush) <i>Vaccinium uliginosum</i> (Bog Bilberry)
<i>Tamarix</i> spp. (Tamarisk)	<i>Chilopsis linearis</i> (desert Willow) <i>Fallugia paradoxa</i> (Apache Plume)
<i>Ulex europaeus</i> (Gorse)	<i>Ceanothus</i> spp. California Lilac <i>Philadelphus lewisii</i> (Western Mockorange) <i>Vaccinium parvifolium</i> (Red Blueberry)
<i>Ulmus pumila</i> (Siberian Elm)	<i>Ulmus alata</i> (Winged Elm) <i>Ulmus thomasi</i> (Rock Elm)
<i>Wisteria floribunda</i> and <i>W. sinensis</i> (Japanese and Chinese Wisteria)	<i>Campsis radicans</i> (Trumpet creeper) <i>Wisteria frutescens</i> (American Wisteria) <i>Wisteria macrostachya</i> (Kentucky Wisteria)