Revised 8/97 -- Author Reviewed 8/97



RECOMMENDED TREES FOR URBAN LANDSCAPES: PROVEN PERFORMERS FOR DIFFICULT SITES

T.G. Ranney, M.A. (Kim) Powell, and Richard E. Bir Extension Horticultural Specialists

The following list of recommended trees includes a variety of plants that have demonstrated particular resistance to harsh growing conditions, diseases, and insects in North Carolina. It should be emphasized, however, that even these trees have their limits. No single species is suited for all sites, and consideration should be given to soil conditions, local occurrence of diseases and insects, microclimate, hardiness zone, and mature tree size when selecting any plant.

Site preparation can also be extremely important in determining the success of any landscape planting. Every effort should be made to provide for adequate moisture, drainage, and rooting space on all sites. If trees are to be planted under utility lines, special consideration should be given to species and cultivars with mature heights less than the existing overhead clearance. Maintaining a good diversity of species in any landscape planting will help insure that insects, diseases, and changing environmental conditions will not, at some point, result in widespread problems.

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Employment and program opportunities are offered to all people regardless of race, color, national origin, sex, age, or disability. North Carolina State University, North Carolina State University, North Carolina State University, Of Agriculture, and local

governments cooperating.

In certain cases, specific cultivars have been listed below. These cultivated varieties may have particular merit due to exceptional ornamental features or due to a unique form or habit. Many of the upright or columnar selections are particularly useful in situations where there is limited space for canopy development, as is often the case along urban streets.

The hardiness ratings presented conform to the USDA hardiness zone map. Zones 6, 7, and 8 correspond roughly to the mountains, Piedmont, and Coastal Plain regions of North Carolina, respectively.

Although this list includes many desirable plants, it is not all-inclusive, and the focus is on stress-resistant plants. Less stressresistant plants can be appropriate on favorable sites. Experimentation with new introductions and cultivars is encouraged.

Sources For More Information:

Dirr, M.A. 1990. Manual of woody landscape plants: Their identification, ornamental characteristics, culture, propagation and use. Stipes, Champaign, Ill.

Halfacre, R.G. and A.R. Shawcroft. 1989. *Landscape plants of the Southeast*. Sparks Press, Raleigh, NC.

Wyman, D. 1990. *Trees for American* gardens: The definitive guide to identification and cultivation. Macmillan, New York, NY.



North Carolina Cooperative Extension Service NORTH CAROLINA STATE UNIVERSITY COLLEGE OF AGRICULTURE & LIFE SCIENCES

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitations
Acer barbatum [*] Southern Sugar Maple	Limited availability of cultivars.	7 to 9	65/45	oval	More heat tol. than <i>A. saccharum</i>	Avoid compacted or dry sites. Intolerant of salt.
Acer buergeranum [*] Trident Maple	Limited availability of cultivars.	5 to 8	35/30	oval rounded	DS	Can be weak wooded.
Acer campestre [*] Hedge Maple	'Queen Elizabeth'	6 to 7	40/40	globose ovate	CS, DS, PO, pH adaptable	Extremely adaptable. May be injured by late frosts.
<i>Acer leucoderme</i> * Chalkbark Maple	Limited availability of cultivars.	5 to 9	30/25	oval rounded	DS	Can have excellent fall color.
Acer platanoides* Norway Maple	'Cleveland' 'Columnar' 'Crimson King' 'Deborah' 'Emerald Luster' 'Emerald Queen' 'Globosum' 'Olmsted' 'Schwedleri' 'Summershade' 'Superform'	$\begin{array}{c} 4 \ to \ 6 \\ 4 \ to \ 6 \end{array}$	55/35 35/15 45/35 65/55 65/60 75/60 15/18 45/25 60/50 75/65 45/40	ovate columnar broadly ovate broadly ovate globose broadly ovate globose columnar broadly ovate broadly ovate broadly globose	CS, PD, PO SA, pH adaptable	Tolerant of urban conditions. May suffer from leaf scorch, <i>Verticillium, Ganoderma</i> rot, aphids, and frost cracks. Dense shade and shallow roots may interfere with turf.
Acer rubrum [*] Red Maple	'Autumn Flame' 'Bowhall' 'Karpick' 'Northwood' 'October Glory' 'Red Skin' 'Red Sunset'	4 to 6 4 to 8 4 to 8 3 to 6 5 to 8 3 to 7 4 to 7	55/45 50/30 50/25 40/35 60/50 40/35 60/50	broadly ovate conical narrowly ovate broadly ovate broadly ovate broadly ovate broadly ovate	CS, PD, PO	Own-rooted plants preferred as graft compatibility can be a problem. Susceptible to <i>Verticillium</i> wilt. Intolerant of high pH. Shallow rooted.
Acer x freemanii [*] Hybrid Maple	'Armstrong' 'Autumn Blaze' 'Celebration' 'Scarlet Sentinel'	4 to 8 4 to 7 4 to 7 4 to 7 4 to 7	60/25 65/50 65/40 70/35	columnar ovate ovate narrow ovate	PD, PO	A cross between <i>A. rubrum</i> and <i>A. saccharinum</i> . Intolerant of high pH.
Aesculus hippocastanum Horsechestnut	'Baumannii'	4 to 7	70/55	ovate	CS, SA, pH adaptable	Susceptible to leaf blotch and scorch.

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitations
<i>Aesculus x carnea</i> Red Horsechestnut	'Briotii'	5 to 7	50/45	broadly ovate	CS	Less susceptible to leaf blotch and scorch than <i>A. hippocastanum</i> .
Alnus glutinosa [*] European Alder	species 'Pyramidalis'	3 to 7 3 to 7	60/40 50/25	pyramidal columnar	DS, PD, PO	Tent caterpillar can be a problem.
<i>Betula nigra</i> River birch	'Heritage'	4 to 9	50/35	ovate	PD	Resistant to bronze birch borer. Drought sensitive.
<i>Carpinus betulus</i> * European Hornbeam	species 'Fastigiata'	4 to 7 5 to 8	60/40 40/30	oval rounded oval vase	DS, PD, PO, pH adaptable	Bagworms can be a problem.
<i>Celtis laevigata</i> [*] Sugar Hackberry	'All Seasons'	5 to 9	50/40	rounded	DS, CS, PD, PO, SA	Intolerant of high pH.
<i>Cornus kousa</i> Kousa dogwood	'Milky Way Select'	5 to 8	25/25	rounded	tolerates partial shade	Resistant to Discula anthracnose.
<i>Cotinus coggygria</i> Smoketree	'Daydream'	5 to 8	15/15	open	DS, pH adaptable	Susceptible to Verticillium.
<i>Corylus colurna</i> * Turkish Filbert	Cultivars are not available.	5 to 7	60/35	conical	DS, pH adaptable	Tolerant of poor sites.
<i>Crataegus viridis</i> Green Hawthorn	'Winter King'	4 to 7	30/30	rounded vase	DS, PD, pH adaptable	Occasional thorns.
x <i>Cupressocyparis</i> <i>leylandii</i> Leyland Cypress	'Haggerston Grey' 'Leighton Green' 'Naylor's Blue' 'Silver Dust'	7 to 10 7 to 10 7 to 10 7 to 9	70/15 70/10 60/20 60/10	columnar pyram. columnar columnar pyram. columnar pyram.	PD, SA, pH adaptable	Fast grower, very adaptable, however, shor lived on poorer sites. Bagworm and stem canker are problems.
<i>Eriobotrya japonica</i> * Loquat	'Golden Nugget'	9 to 10	25/25	rounded	DS, high pH	Evergreen. Susceptible to fireblight.
Eucommia ulmoides* Hardy Rubber Tree	Limited availability of cultivars.	4 to 7	60/60	rounded	DS, high pH	Intolerant of poor drainage.

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitations
<i>Fraxinus pennsylvanica</i> * Green Ash	'Marshall Seedless' 'Newport' 'Patmore' 'Summit' 'Urbanite'	2 to 7 3 to 7 3 to 7 4 to 8 6 to 8	55/45 55/45 60/50 60/55 60/45	broadly conical ovate broadly ovate ovate conical	CS, DS, SA, PD, pH adaptable	Select male cultivars for seedlessness. Anthracnose can be a problem.
Ginkgo biloba* Ginkgo	'Lakeview' 'Princeton Sentry'	4 to 8 4 to 8	55/35 65/30	conical columnar	CS, DS, PD, PO, SA,	Plant only male clones. Very adaptable. pH adaptable
Gleditsia triacanthos [*] var. inermis Thornless Honeylocust	species 'Imperial' 'Moraine' 'Shademaster' 'Skyline'	4 to 7 5 to 7 4 to 7 5 to 7 4 to 7	80/70 40/45 70/60 70/60 75/65	broadly ovate broadly globose broadly ovate ovate vase broadly ovate	CS, DS, SA, high pH	Some insect problems: plant bugs, mites, webworm, etc. Overused in some areas.
<i>Gymnocladus dioicus</i> Kentucky Coffeetree	Limited availability of cultivars.	4 to 9	75/65	ovate	DS, SA, high pH	Pods may be undesirable. Adaptable.
<i>Ilex</i> spp. Hollies	'East Palatka' 'Foster's #2' 'Nellie R. Stevens'	7 to 9 6 to 9 6 to 9	25/15 25/12 25/15	pyramidal pyramidal broad pyramidal	DS, PO, PD	No major problems.
<i>Juniperus virginiana</i> Eastern Redcedar	'Burkii' 'Emerald Sentinel' 'Pendula'	2 to 9 2 to 9 2 to 9 2 to 9	25/8 20/5 40/20	broad pyramidal pyram. columnar pendulous	DS, PO, high pH	Adaptable. Avoid planting near apple and crabapples.
Koelreuteria paniculata [*] Goldenraintree	'September'	5 to 9	40/40	broadly globose	DS, PO, SA, high pH	Yellow flowers in summer and good fall color. Can be weedy.
Lagerstromia spp.*	'Byers Wonderful White' 'Dallas Red' 'Muskogee' 'Natchez' 'William Toovey'	7 to 9 7 to 9 7 to 9 7 to 9 7 to 9 7 to 9	20/20 20/20 25/20 25/25 20/20	upright/spread upright/spread upright/spread upright/spread upright/spread	PD	Many cultivars have desirable, exfoliating bark and good fall color. Aphids and mildew.
<i>Liquidambar styraciflua</i> * Sweetgum	species 'Burgundy' 'Festival' 'Rotundiloba'	5 to 9 5 to 9 5 to 9 6 to 9	75/50 75/50 60/40 75/50	pyramid. round pyramid. round pyramid. round narrow pyramid	PD	Intolerant of high pH. Fruit can be a problem.Drought sensitive. 'Rotundiloba' is fruitless.

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitations
<i>Maackia amurensis</i> * Amur Maackia	Cultivars are not available.	3 to 7	30/35	rounded	pH adaptable	White summer flowers. Adaptable.
<i>Malus</i> spp.* Flowering Crabapple	'Adams' 'Centurion' 'Prairifire' 'Robinson' 'Sentinel' 'Sugar Tyme'	4 to 8 4 to 8 4 to 8 4 to 8 4 to 8 4 to 8 4 to 8	20/20 20/15 20/20 25/25 20/12 18/15	rounded upright upright round rounded narrow upright upright oval	CS, DS, PD, SA	Avoid grafted plants on seedling understock; EMLA 111 rootstock is recommended. See HIL no. 613 for more information on crabapples.
<i>Metasequoia glyptostroboides</i> * Dawn Redwood	'National'	5 to 8	85/40	conical	РО	Deciduous conifer. Intolerant of high pH.
<i>Nyssa sylvatica</i> * Black Gum	Limited availability of cultivars.	5 to 9	70/45	conical ovate	PD, DS	Excellent fall color.
Phellodendron amurensis Amur Corktree	'Macho'	4 to 7	45/40	ovate	PD, pH adaptable	Use male selections, e.g. 'Macho,' if fruit is not wanted.
<i>Pinus taeda</i> Loblolly Pine	species 'Nana'	7 to 9 7 to 9	70/30 15/8	pyramidal ovate/rounded	PD	Susceptible to pine beetle.
Pistacia chinensis* Chinese Pistache	'Keith Davey'	7 to 9	35/35	ovate/rounded	DS	Great fall color and adaptable.
<i>Platanus</i> x <i>acerifolia</i> * London Planetree	'Bloodgood' 'Colombia' 'Liberty'	6 to 8 6 to 8 6 to 8	80/65 80/50 80/50	broadly ovate	CS, PD	Cankerstain and bacterial leaf scorch may occur. Cultivars are more resistant to anthracnose.
Prunus caroliniana Carolina Cherrylaurel	Limited availability of cultivars.	8 to 10	20/15	pyramidal	DS, pH adaptable	Avoid sites with poor drainage.
Prunus sargentii* Sargent Cherry	'Columnaris' 'Hillier Spire'	4 to 7 4 to 7	40/18 27/10	narrow columnar fastigiate	DS, SA	Avoid sites with poor drainage.
Prunus virginiana*	'Schubert'	2 to 7	30/20	ovate	DS, SA	Avoid sites with poor drainage. Chokecherry can be weedy.
<i>Pyrus calleryana</i> * Callery Pear	'Bradford'	5 to 8	50/46	broadly ovate	CS, DS, PD, PO, SA	Trees should be trained to a central leader with branches well spaced.

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitations
Quercus acutissima Sawtooth Oak	Cultivars are not available	6 to 9	45/45	oval rounded	PD, CS, DS	Requires acid soils, heavy acorn production holds brown leaves in winter.
<i>Quercus bicolor</i> Swamp White Oak	Cultivars are not available.	3 to 8	80/70	rounded	CS, DS, PD, SA	Requires acid soils.
<i>Quercus imbricaria</i> Shingle Oak	Cultivars are not available.	4 to 7	60/60	broad rounded	DS	No major problems.
<i>Quercus lyrata</i> * Overcup Oak	Cultivars are not available.	5 to 9	45/45	broad rounded	PD	No major problems.
<i>Quercus macrocarpa</i> * Bur Oak	Cultivars are not available.	2 to 8	80/80	broad rounded	DS, PD, PO, pH adaptable	Slow to recover from transplanting.
<i>Quercus phellos</i> * Willow Oak	Cultivars are not available.	6 to 9	90/75	ovate	CS, PD, SA	Cankerworms. Fast grower.
<i>Quercus robur</i> * English Oak	'Fastigiata'	5 to 8	60/15	columnar	DS, PO, SA pH adaptable	Powdery mildew can be a problem.
<i>Quercus rubra</i> [*] Northern Red Oak	Cultivars are not available.	5 to 8	80/65	broadly ovate	CS, PO, SA	No major problems.
<i>Quercus shumardii</i> Shumard Oak	Cultivars are not available.	5 to 9	80/65	rounded/open	РО	No major problems.
<i>Quercus virginiana</i> * Live Oak	Cultivars are not available.	8 to 10	80/100	wide spreading	CS, PD, SA	No major problems.
<i>Sophora japonica</i> [*] x Japanese Pagodatree	species 'Princeton Upright' 'Regent'	6 to 8 6 to 8 6 to 8	70/70 50/35 50/40	broadly ovate ovate broadly ovate	CS, DS, PO, SA	Flowers in late summer. Canker.
Syringa reticulata [*] Japanese Tree Lilac	'Ivory Silk' 'Summer Snow'	3 to 6 3 to 6	30/20 25/25	ovate globose	pH adaptable	No major problems.

Species	Cultivar(s)	Hardiness Zones	Mature Ht./Wdt. (ft)	Form	Stress tolerance ¹	Comments/ limitation
<i>Taxodium distichum</i> * Baldcypress	species 'Monarch of Ill.' 'Shawnee Brave'	5 to 9 5 to 9 5 to 9	85/65 85/65 85/20	conical wide spreading narrow pyramid	CS, PD, PO	A deciduous conifer. Bagworms and mites. Fast grower.
<i>Tilia cordata</i> [*] Littleleaf Linden	species 'Glenleven' 'Greenspire'	3 to 7 3 to 7 3 to 7	80/55 70/50 70/50	ovate conical conical	CS, pH adaptable	Japanese beetle and aphids can be a problem.
<i>Tilia tomentosa</i> [*] Silver Linden	species 'Green Mountain' 'Sterling'	5 to 8 5 to 8 5 to 8	70/55 45/50 45/30	ovate pyramidal ovate pyramidal broad pyramidal	CS, DS, pH adaptable	Aphids.
<i>Ulmus parvifolia</i> * Lacebark Elm	species Athena 'Drake' 'Allee' 'Milliken'	5 to 9 4 to 9 7 to 9 7 to 9 7 to 9 7 to 9	75/75 40/60 75/65 75/75 60/50	ovate vase globe rounded vase ovate	CS, DS, PD, pH adaptable	Exfoliating bark and fast growth. Train to a central leader and select branches with wide crotch angles.
<i>Ulmus</i> spp.* Hybrid Elms	'Homestead' 'Pioneer' 'Sapporo Autumn Gold' 'Urban'	5 to 7 5 to 7 4 to 7 5 to 7	60/45 60/60 70/60 60/45	conical globose ovate narrow/ovate	CS, DS, PO, PD, SA, pH adaptable.	Elm leaf beetle.
Zelkova serrata* Japanese Zelkova	'Green Vase' 'Village Green'	5 to 8 5 to 8	70/55 60/60	vase broad vase	CS, DS, PO, pH adaptable	Narrow crotch angles can result in splitting.

* Recommended for possible use as a street tree.
¹ Tolerant of: CS = compacted soils, DS = dry soils, PO = pollution (primarily sulphur dioxide and ozone), PD = poor drainage, SA = salt.