

# URBAN TREES AND SHRUBS

A guide to the selection of trees and shrubs in urban areas.

## Section I



**Selecting Deciduous Trees for Urban Areas - 118 slides and text.** A review of deciduous tree species that can thrive in typical urban environments; their particular characteristics, relative hardiness and best uses.

Index by: [Species & Size](#)

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## Section II



**Selecting Deciduous Shrubs for Urban Areas - 72 slides and text.** A review of deciduous shrub species suited to urban landscape uses and conditions, including information on hardiness and ornamental features.

Index by: [Species & Size](#)

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## Section III



**Selecting Conifers for Urban Areas - 75 slides and text.** A review of conifer characteristics, genera and growth habits, including recommendations for urban landscapes uses.

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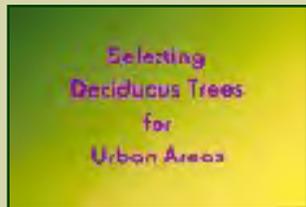


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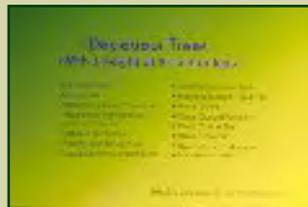
# Section I: Selecting Deciduous Trees for Urban Areas



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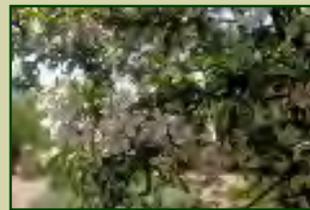
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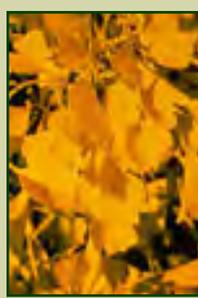
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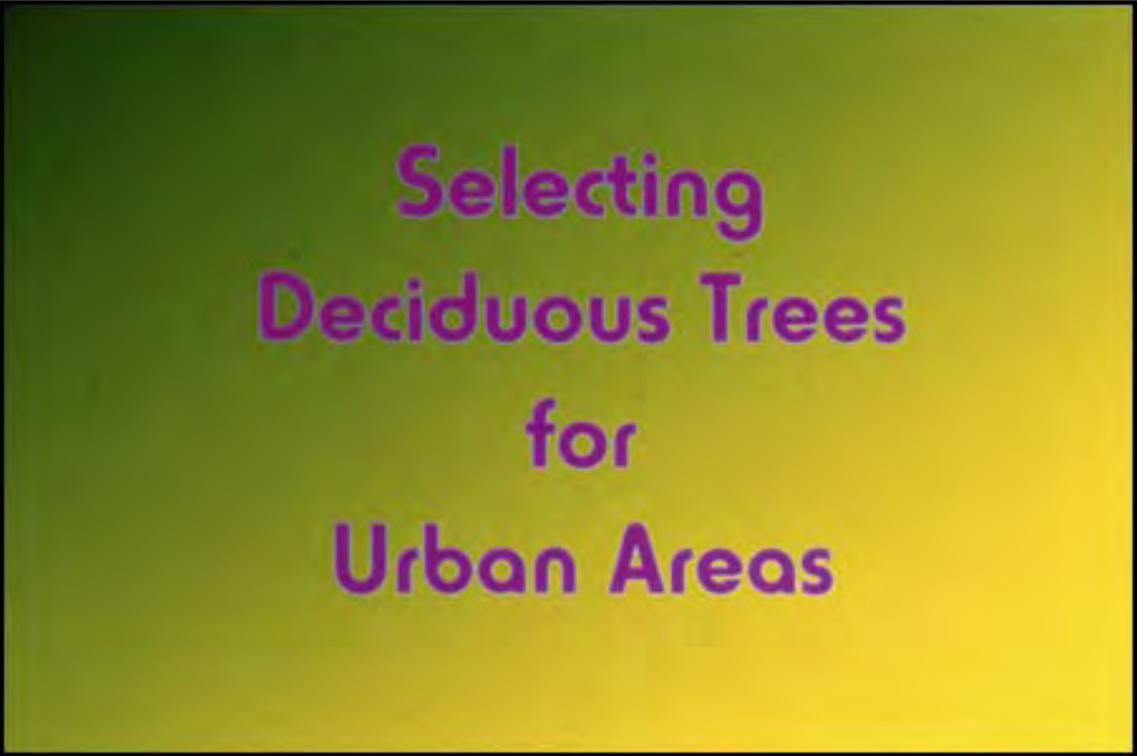
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# Selecting Deciduous Trees for Urban Areas

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## Characteristics To Consider:

- Ultimate size and habit of the plant
- Hardiness
- Light needs
- Water needs
- Soil type
- Salt tolerance
- Pest and disease resistance
- Pollution tolerance
- Limb strength
- Ornamental features

Selecting Deciduous Trees for Urban Areas

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## Deciduous Trees (With a height of 30 feet or less)

- Acer campestra
- Acer ginnala
- Amelanchier laevis 'Cumulus'
- Amelanchier x grandiflora 'Autumn Brilliance'
- Carpinus caroliniana
- Crataegus phaenopyrum
- Crataegus viridis 'Winter King'
- Koelreuteria paniculata
- Magnolia stellata 'Royal Star'
- Malus 'David'
- Malus 'Donald Wyman'
- Malus 'Prairie Fire'
- Malus 'Snowdrift'
- Malus x zumi 'Calocarpa'
- Syringa reticulata 'Ivory silk'

Selecting Deciduous Trees for Urban Areas

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Trees With a Height of 30 Feet or Less: Examples.

- Acer campestra
- Acer ginnala
- Amelanchier laevis 'Cumulus'
- Amelanchier x grandiflora 'Autumn Brilliance'
- Carpinus caroliniana
- Crataegus phaenopyrum
- Crataegus viridis 'Winter King'
- Koelreuteria paniculata
- Magnolia stellata 'Royal Star'
- Malus 'David'
- Malus 'Donald Wyman'
- Malus 'Prairie Fire'
- Malus 'Snowdrift'
- Malus x zumi 'Calocarpa'
- Syringa reticulata 'Ivory silk'

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**Slide 4**

***Acer campestre***  
**Hedge Maple**

SIZE: 30'H x 30'W.

HARDINESS: zone 5 to 7.

HABIT: Dense, broad spreading.

FOLIAGE: Green, 2-4" rounded lobes, subdued yellow in fall.

DESCRIPTION: Tolerates urban conditions with no serious pests or disease problems. Tolerates dry soil, compaction and air pollutants.

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**Slide 5**  
***Acer campestre***  
**Hedge Maple**

SIZE: 30'H x 30'W.

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**Slide 6**

***Acer campestre***

**Hedge Maple**

SIZE: 30'H x 30'W.

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HABIT: Dense, broad spreading.

FOLIAGE: Green, 2-4" rounded lobes, subdued yellow in fall.

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**Slide 7**  
***Acer ginnala***  
**Amur Maple**

**SIZE:** 18'H X 25'W.

**HARDINESS:** zone 3 to 7.

**HABIT:** Multi-stemmed small tree or large shrub with rounded outline. Can be trained into tree form with single leader.

**FOLIAGE:** Glossy, 2-3" leaves turning orange to red in fall.

**DESCRIPTION:** Can be used as hedge, specimen, or in masse. Very cold hardy and adaptable to a wide range of soil conditions. Tolerates more shade than most maples.

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**Slide 8**  
***Acer ginnala***  
**Amur Maple**

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**Slide 9**

***Amelanchier laevis* 'Cumulus'**

**Cumulus Serviceberry**

SIZE: 25'H x 15'W.

HARDINESS: zone 4 to 7.

HABIT: Moderately columnar, single trunk or clump form.

FOLIAGE: Dark green turning yellow-orange to scarlet in fall.

DESCRIPTION: Soft textured, highly versatile street tree or specimen. Two inch white blossoms engulf the tree in spring followed by red berries emerging in early summer and turning purple in June; will tolerate some shade. Single trunk forms are recommended for street tree use.

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**Slide 10**

***Amelanchier laevis* 'Cumulus'**

**Cumulus Serviceberry**

SIZE: 25'H x 15'W.

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**Slide 11**

*Amelanchier x grandiflora*

'Autumn Brilliance'

**Autumn Brilliance Serviceberry**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Upright multi-stem or single trunk.

FOLIAGE: Dark, lustrous green turning to brilliant red in fall.

DESCRIPTION: 2" white blossoms in clusters appearing in spring. Spreading branch habit and limited size make this tree adaptable to many situations. Requires little maintenance.

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**Slide 12**

*Amelanchier x grandiflora* 'AutumnBrilliance'

**Autumn Brilliance Serviceberry**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Upright multi-stem or single trunk.

FOLIAGE: Dark, lustrous green turning to brilliant red in fall.

DESCRIPTION: 2" white blossoms in clusters appearing in spring. Spreading branch habit and limited size make this tree adaptable to many sit ations. Requires little maintenance.

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**Slide 13**

*Amelanchier x grandiflora*

'Autumn Brilliance'

**Autumn Brilliance Serviceberry**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Upright multi-stem or single trunk.

FOLIAGE: Dark, lustrous green turning to brilliant red in fall.

DESCRIPTION: 2" white blossoms in clusters appearing in spring.

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**Slide 14**

*Carpinus caroliniana*

**American Hornbeam**

SIZE: 30'H x 25'W.

HARDINESS: zone 3 to 9.

HABIT: Ovate or broadly columnar, irregular.

FOLIAGE: 2-4" bluish green leaves, yellow orange to deep red in fall.

DESCRIPTION: Smooth gray bark often with a crooked trunk. Often called musclewood because of the trunk's sinewy tendon like appearance. Slow growing, tolerates shade and will also tolerate flooding as it grows native along streams and riverbanks.

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**Slide 15**

*Carpinus caroliniana*

**American Hornbeam**

SIZE: 30'H x 25'W.

HARDINESS: zone 3 to 9.

HABIT: Ovate or broadly columnar, irregular.

FOLIAGE: 2-4" bluish green leaves, yellow orange to deep red in fall.

DESCRIPTION: Smooth gray bark often with a crooked trunk. Often called musclewood because of the trunk's sinewy tendon like appearance. Slow growing, tolerates shade and will also tolerate flooding as it grows native along streams and riverbanks

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**Slide 16**

*Carpinus caroliniana*

**American Hornbeam**

SIZE: 30'H x 25'W.

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DESCRIPTION: Smooth gray bark often with a crooked trunk. Often called musclewood because of the trunk's sinewy tendon like appearance. Slow growing, tolerates shade and will also tolerate flooding as it grows native along streams and riverbanks.

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**Slide 17**

*Crataegus phaenopyrum*

**Washington Hawthorn**

SIZE: 25'H x 25'W.

HARDINESS: zone 4 to 8.

HABIT: Broad-ovate, densely branched.

FOLIAGE: 1" to 3" glossy dark green leaves, orange-red to purple in fall.

DESCRIPTION: Tolerates severe urban stresses including drought and pollution. Offers beautiful flowers and fruits. Thorns on lower branches maybe harmful.

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**Slide 18**

*Crataegus phaenopyrum*  
**Washington Hawthorn**

SIZE: 25'H x 25'W.

HARDINESS: zone 4 to 8.

HABIT: Broad-ovate, densely branched.

FOLIAGE: 1" to 3" glossy dark green leaves, orange-red to purple in fall.

DESCRIPTION: Tolerates severe urban stresses including drought and pollution. Offers beautiful flowers and fruits. Thorns on lower branches may be harmful.

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**Slide 19**

*Crataegus phaenopyrum*

**Washington Hawthorn**

SIZE: 25'H x 25'W.

HARDINESS: zone 4 to 8.

HABIT: Broad-ovate, densely branched.

FOLIAGE: 1" to 3" glossy dark green leaves, orange-red to purple in fall.

DESCRIPTION: Tolerates severe urban stresses including drought and pollution. Offers beautiful flowers and fruits. Thorns on lower branches maybe harmful.

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**Slide 20**

***Crataegus viridis* 'Winter King'  
Winterking Hawthorn**

**SIZE:** 25'H x 35'W.

**HARDINESS:** zone 4 to 8.

**HABIT:** Broad, wide spreading, open habit.

**FOLIAGE:** Glossy green leaves turning bronze red in fall.

**DESCRIPTION:** Performs well in adverse conditions. Two inch white flower clusters in spring and 1/4" orange-red berries persisting through winter. Occasional thorns may be a problem.

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**Slide 21**

***Crataegus viridis* 'Winter King'  
Winterking Hawthorn**

SIZE: 25'H x 35'W.

HARDINESS: zone 4 to 8.

HABIT: Broad, wide spreading, open habit.

FOLIAGE: Glossy green leaves turning bronze red in fall.

DESCRIPTION: Performs well in adverse conditions. Two inch white flower clusters in spring and 1/4" orange-red berries persisting through winter. Occasional thorns may be a problem.

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**Slide 22**

*Crataegus viridis* 'Winter King'

**Winterking Hawthorn**

SIZE: 25'H x 35'W.

HARDINESS: zone 4 to 8.

HABIT: Broad, wide spreading, open habit.

FOLIAGE: Glossy green leaves turning bronze red in fall.

DESCRIPTION: Performs well in adverse conditions. Two inch white flower clusters in spring and ¼" orange-red berries persisting through winter. Occasional thorns may be a problem.

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**Slide 23**

*Koelreuteria paniculata*

**Goldenrain Tree**

SIZE: 30'H x 30'W.

HARDINESS: zone 5 to 9.

HABIT: Broadly ovate to globose.

FOLIAGE: Pinnately compound, 1½" to 3" feathery blue-green leaflets appearing bluish in spring and turning yellow in fall.

DESCRIPTION: Tolerant of drought, heat, pollution, and alkaline soils. Bright yellow flower spikes appear in midsummer when few other trees are flowering. Excellent lawn specimen and also street tree. Abundant seed pods may result in seedlings in fertile soil.

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**Slide 24**

*Koelreuteria paniculata*

**Goldenrain Tree**

SIZE: 30'H x 30'W.

HARDINESS: zone 5 to 9.

HABIT: Broadly ovate to globose.

FOLIAGE: Pinnately compound, 1½" to 3" feathery blue-green leaflets appearing bluish in spring and turning yellow in fall.

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**Slide 25**

*Koelreuteria paniculata*

**Goldenrain Tree**

SIZE: 30'H x 30'W.

HARDINESS: zone 5 to 9.

HABIT: Broadly ovate to globose.

FOLIAGE: Pinnately compound, 1½" to 3" feathery blue-green leaflets appearing bluish in spring and turning yellow in fall.

DESCRIPTION: Tolerant of drought, heat, pollution, and alkaline soils. Bright yellow flower spikes appear in midsummer when few other trees are flowering. Excellent lawn specimen and also street tree. Abundant seed pods may result in seedlings in fertile soil.

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**Slide 26**

*Magnolia stellata* 'Royal Star'

**Royal Star Magnolia**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Broad to ovate, single trunk or clump form.

FOLIAGE: 2" to 4" medium green leaves turning bronzy yellow in fall.

DESCRIPTION: Good accent plant and often grown as a large shrub. Lovely white magnolia-like flowers. Needs slight protection from harsh winter conditions.

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**Slide 27**

*Magnolia stellata* 'Royal Star'

**Royal Star Magnolia**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Broad to ovate, single trunk or clump form.

FOLIAGE: 2" to 4" medium green leaves turning bronzy yellow in fall.

DESCRIPTION: Good accent plant and often grown as a large shrub. Lovely white magnolia-like flowers. Needs slight protection from harsh winter conditions.

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**Slide 28**

*Magnolia stellata* 'Royal Star'

**Royal Star Magnolia**

SIZE: 20'H x 15'W.

HARDINESS: zone 4 to 8.

HABIT: Broad to ovate, single trunk or clump form.

FOLIAGE: 2" to 4" medium green leaves turning bronzy yellow in fall

DESCRIPTION: Good accent plant and often grown as a large shrub. Lovely white magnolia-like flowers. Needs slight protection from harsh winter conditions.

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**Slide 29**

*Malus* 'David'

**Crabapple**

SIZE: 15'H x 15'W.

HARDINESS: zone 3 to 7.

HABIT: Compact, rounded.

FOLIAGE: Light green, glossy.

DESCRIPTION: Good specimen tree of compact size excellent for smaller spaces. Creamy white flowers and persistent red fruit; excellent disease resistance to apple scab.

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**Slide 30**

*Malus* 'David'

**Crabapple**

SIZE: 15'H x 15'W.

HARDINESS: zone 3 to 7.

HABIT: Compact, rounded.

FOLIAGE: Light green, glossy.

DESCRIPTION: Good specimen tree of compact size excellent for smaller spaces. Creamy white flowers and persistent red fruit; excellent disease resistance to apple scab.

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**Slide 31**

*Malus* 'Donald Wyman'

**Donald Wyman Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Rounded, spreading, can be single trunk or clump form.

FOLIAGE: Dark glossy green.

DESCRIPTION: An excellent crab with white flowers and glossy, bright red fruit that persist longer than most crabs; slightly susceptible to apple scab.

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**Slide 32**

*Malus* 'Donald Wyman'

**Donald Wyman Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Rounded, spreading, can be single trunk or clump form.

FOLIAGE: Dark glossy green.

DESCRIPTION: An excellent crab with white flowers and glossy, bright red fruit that persist longer than most crabs; slightly susceptible to apple scab.

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**Slide 33**

*Malus* 'Prairie Fire'

**Prairiefire Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Upright, spreading, rounded.

FOLIAGE: Purple, turning reddish-green.

DESCRIPTION: Pinkish red flowers and dark red fruit; excellent disease resistance to apple scab.

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**Slide 34**

*Malus* 'Prairie Fire'

**Prairiefire Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Upright, spreading, rounded.

FOLIAGE: Purple, turning reddish-green.

DESCRIPTION: Pinkish red flowers and dark red fruit; excellent disease resistance to apple scab.

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**Slide 35**

*Malus* 'Prairie Fire'

**Prairiefire Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Upright, spreading, rounded.

FOLIAGE: Purple, turning reddish-green.

DESCRIPTION: Pinkish red flowers and dark red fruit; excellent disease resistance to apple scab.

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**Slide 36**

*Malus* 'Snowdrift'

**Snowdrift Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Dense, upright, spreading.

FOLIAGE: Glossy green.

DESCRIPTION: A very uniform, symmetrical crab with moderate susceptibility to apple scab.

Fireblight may be a problem in susceptible areas. Pink buds open to white and then orange fruit are produced in the fall.

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**Slide 37**

*Malus x zurni* 'Calocarpa'  
**Redbud Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Rounded ovate,  
spreading uniformly.

FOLIAGE: Green.

DESCRIPTION: Excellent specimen, one of the best crabs available, attractive red flower buds open to expose beautiful white blossoms; deep red fruits develop in the fall. Good disease resistance.

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**Slide 38**

*Malus x zurni* 'Calocarpa'

**Redbud Crabapple**

SIZE: 20'H x 20'W.

HARDINESS: zone 3 to 7.

HABIT: Rounded ovate, spreading uniformly.

FOLIAGE: Green.

DESCRIPTION: Excellent specimen, one of the best crabs available, attractive red flower buds open to expose beautiful white blossoms; deep red fruits develop in the fall. Good disease resistance.

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**Slide 39**

*Syringa reticulata* 'Ivory silk'  
**Japanese Tree Lilac**

**SIZE:** 25'H x 20'W.

**HARDINESS:** zone 3 to 8.

**HABIT:** Ovate to rounded crown with spreading branches.

**FOLIAGE:** 2" - 5" simple dark green leaves without significant fall color.

**DESCRIPTION:** Selected for its small size and vigor, excellent for planting under utility lines and along streets, 6" - 10" clusters of creamy white flowers emerge in late spring, very showy!

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**Slide 40**

*Syringa reticulata* 'Ivory silk'

**Japanese Tree Lilac**

SIZE: 25'H x 20'W.

HARDINESS: zone 3 to 8.

HABIT: Ovate to rounded crown with spreading branches.

FOLIAGE: 2" - 5" simple dark green leaves without significant fall color.

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## Deciduous Trees

(With a height of greater than 30 feet)

<ul style="list-style-type: none"> <li>▪ Acer x freemanii 'Jeffersred'</li> <li>▪ Acer x freemanii 'Armstrong'</li> <li>▪ Aesculus x camea 'Briotii'</li> <li>▪ Alnus glutinosa</li> <li>▪ Betula nigra 'Heritage'</li> <li>▪ Carpinus betulus</li> <li>▪ Celtis occidentalis</li> <li>▪ Cercidiphyllum japonicum</li> <li>▪ Corylus columa</li> <li>▪ Fraxinus americana</li> <li>▪ Fraxinus pennsylvanica</li> <li>▪ Fraxinus quadrangulata</li> <li>▪ Gingko biloba</li> <li>▪ Gleditsia triancanthos</li> <li>▪ Gymnocladus dioicus</li> </ul>	<ul style="list-style-type: none"> <li>▪ Liriodendron tulipifera</li> <li>▪ Ostrya virginiana</li> <li>▪ Pyrus calleryana</li> <li>▪ Quercus bicolor</li> <li>▪ Quercus imbricaria</li> <li>▪ Quercus macrocarpa</li> <li>▪ Quercus meuhllenbergii</li> <li>▪ Quercus rubra</li> <li>▪ Tilia americana</li> <li>▪ Tilia cordata</li> <li>▪ Tilia tomentosa</li> <li>▪ Ulmus parvifolia</li> <li>▪ Ulmus 'Pioneer'</li> <li>▪ Ulmus 'Homestead'</li> <li>▪ Zelkova serrata</li> </ul>
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Selecting Deciduous Trees for Urban Areas

**Slide 41**

**Trees with a Height of Thirty Feet or Greater.**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>● Acer x freemanli 'Jeffersred'</li> <li>● Acer x freemanli 'Armstrong'</li> <li>● Aesculus x camea 'Brioti'</li> <li>● Alnus glutinosa</li> <li>● Betula nigra 'Heritage'</li> <li>● Carpinus betulus</li> <li>● Celtis occidentalis</li> <li>● Cercidiphyllum japonicum</li> <li>● Corylus columa</li> <li>● Fraxinus americana</li> <li>● Fraxinus pennsylvanica</li> <li>● Fraxinus quadrangulata</li> <li>● Gingko biloba</li> <li>● Gleditsia triancanthos</li> <li>● Gymnociadus dioicus</li> </ul> | <ul style="list-style-type: none"> <li>● Linodendron tulipifera</li> <li>● Ostry virginiana</li> <li>● Pyrus calleryana</li> <li>● Quercus bicolor</li> <li>● Quercus imbricaria</li> <li>● Quercus macrocarpa</li> <li>● Quercus meuhllenbergii</li> <li>● Quercus rubra</li> <li>● Tilia americana</li> <li>● Tilia cordata</li> <li>● Tilia tomentosa</li> <li>● Ulmus parvifolia</li> <li>● Ulmus 'Pioneer'</li> <li>● Ulmus 'Homestead'</li> <li>● Zelkova serrata</li> </ul> |
|---|--|



**Slide 42**

*Acer x freemanii* 'Jeffersred'

**Autumn Blaze Freeman Maple**

SIZE: 50'H x 40'W.

HARDINESS: zone 4 to 7.

HABIT: Dense, ovate to rounded outline.

FOLIAGE: Deep green turning a brilliant orange-red in fall.

DESCRIPTION: Long lasting fall color.

Thin bark is easily damaged-not to be used in high traffic areas (pedestrian).

Strong branching habit is less

susceptible to storm damage than silver

maple. Hybrid between red and silver

maples.

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**Slide 43**

*Acer x freemanii* 'Jeffersred'

**Autumn Blaze Freeman Maple**

SIZE: 50'H x 40'W.

HARDINESS: zone 4 to 7.

HABIT: Dense, ovate to rounded outline.

FOLIAGE: Deep green turning a brilliant orange-red in fall.

DESCRIPTION: Long lasting fall color. Thin bark is easily damaged-not to be used in high traffic areas (pedestrian). Strong branching habit is less susceptible to storm damage than silver maple.

Hybrid between red and silver maples.

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**Slide 44**

*Acer x freemanii* 'Armstrong'  
**Armstrong Freeman Maple**

SIZE: 60'H x 20'W.

HARDINESS: zone 4 to 7.

HABIT: Upright columnar,  
spreading slightly with age.

FOLIAGE: Silver underside, yellow  
in fall.

DESCRIPTION: Very heat tolerant,  
Hybrid between Red and Silver  
maples. Adaptable over a wide range  
of climate and soil conditions. Will  
tolerate partial shade.

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**Slide 45**

*Acer x freemanii* 'Armstrong'  
**Armstrong Freeman Maple**

SIZE: 60'H x 20'W.

HARDINESS: zone 4 to 7.

HABIT: Upright columnar, spreading slightly with age.

FOLIAGE: Silver underside, yellow in fall.

DESCRIPTION: Very heat tolerant, Hybrid between Red and Silver maples. Adaptable over a wide range of climate and soil conditions. Will tolerate partial shade.

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**Slide 46**

*Acer x freemanii* 'Armstrong'  
**Armstrong Freeman Maple**

SIZE: 60'H x 20'W.

HARDINESS: zone 4 to 7.

HABIT: Upright columnar,  
spreading slightly with age.

FOLIAGE: Silver underside, yellow  
in fall.

DESCRIPTION: Very heat tolerant,  
Hybrid between Red and Silver  
maples. Adaptable over a wide range  
of climate and soil conditions. Will  
tolerate partial shade.

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**Slide 47**

*Aesculus x carnea* 'Briotii'

**Red Horsechestnut**

SIZE: 40'H x 35'W.

HARDINESS: zone 5 to 7.

HABIT: Broad rounded.

FOLIAGE: Dark green, no significant fall color.

DESCRIPTION: Showy, bright red 6" to 10" flower spikes.

Hybrid between Red Buckeye and Horsechestnut; very tolerant of heat, drought, and most urban stresses.

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**Slide 48**

*Alnus glutinosa*

**Common Alder**

SIZE: 40'H x 30'W.

HARDINESS: zone 4 to 6.

HABIT: Loosely pyramidal to oval.

FOLIAGE: 2-4" nearly rounded green leaves, little or no fall color.

DESCRIPTION: 2"-3" male flowers (catkins) appear in fall and flower in spring, female catkins develop into small cone-like structures called strobilis - 1" - 1½". Tolerant of poor soils and will thrive in wet locations; also tolerant of dry urban conditions.

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**Slide 49**

*Alnus glutinosa*

**Common Alder**

SIZE: 40'H x 30'W.

HARDINESS: zone 4 to 6.

HABIT: Loosely pyramidal to oval.

FOLIAGE: 2-4" nearly rounded green leaves, little or no fall color.

DESCRIPTION: 2"-3" male flowers (catkins) appear in fall and flower in spring, female catkins develop into small cone-like structures called strobilis - 1" - 1½". Tolerant of poor soils and will thrive in wet locations; also tolerant of dry urban conditions.

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**Slide 50**

*Alnus glutinosa*

**Common Alder**

SIZE: 40'H x 30'W.

HARDINESS: zone 4 to 6.

HABIT: Loosely pyramidal to oval.

FOLIAGE: 2-4" nearly rounded green leaves, little or no fall color.

DESCRIPTION: 2"-3" male flowers (catkins) appear in fall and flower in spring, female catkins develop into small cone-like structures called strobilis - 1" - 1½". Tolerant of poor soils and will thrive in wet locations; also tolerant of dry urban conditions.

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**Slide 51**

*Betula nigra* 'Heritage'

**Heritage River Birch**

SIZE: 40'H x 30'W.

HARDINESS: zone 4 to 8.

HABIT: Conical-spreading, single trunk or clump form.

FOLIAGE: 2" glossy green leaves turning yellow in fall.

DESCRIPTION: This selection has an improved habit over the species. The crown is more uniform and is less irregular in appearance. Tolerant of bronze birch borer, cream colored peeling bark remains throughout the seasons.

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**Slide 52**

*Betula nigra* 'Heritage'

**Heritage River Birch**

SIZE: 40'H x 30'W.

HARDINESS: zone 4 to 8.

HABIT: Conical-spreading, single trunk or clump form.

FOLIAGE: 2" glossy green leaves turning yellow in fall.

DESCRIPTION: This selection has an improved habit over the species. The crown is more uniform and is less irregular in appearance. Tolerant of bronze birch borer, cream colored peeling bark remains throughout the seasons.

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**Slide 53**

*Carpinus betulus*

**European Hornbeam**

SIZE: 35'H x 20'W.

HARDINESS: zone 5 to 8.

HABIT: Dense, narrowly conical, becomes broader with age.

FOLIAGE: 2 ½" light green, slight yellowing in fall.

DESCRIPTION: Commonly used as hedge or screen, tolerates severe pruning, even shearing. No serious disease or pest problems, tolerates pollution and poor soil.

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**Slide 54**

*Celtis occidentalis*

**Hackberry**

SIZE: 50'H x 40'W.

HARDINESS: zone 4 to 8.

HABIT: Broad rounded crown.

FOLIAGE: Leathery, deep green leaves turning yellow in fall.

DESCRIPTION: Tolerates alkaline soil, air pollution, salt, and drought. Large stately looking tree excellent for street plantings.

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**Slide 55**

*Celtis occidentalis*

**Hackberry**

SIZE: 50'H x 40'W.

HARDINESS: zone 4 to 8.

HABIT: Broad rounded crown.

FOLIAGE: Leathery, deep green  
leaves turning yellow in fall.

DESCRIPTION: Tolerates alkaline  
soil, air pollution, salt, and drought.  
Large stately looking tree excellent for  
street plantings.

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**Slide 56**

*Cercidiphyllum japonicum*

**Katsura Tree**

SIZE: 50'H x 35'W.

HARDINESS: zone 5 to 8.

HABIT: Conical becoming rounded with age.

FOLIAGE: 2" to 4" heart shaped leaves emerging purple in spring and turning blue green and then yellow-orange in fall.

DESCRIPTION: Relatively resistant to diseases and pests, attractively foliage throughout the growing season. Stressed in poor or compacted soil and not drought tolerant.

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**Slide 57**

*Cercidiphyllum japonicum*

**Katsura Tree**

SIZE: 50'H x 35'W.

HARDINESS: zone 5 to 8.

HABIT: Conical becoming rounded with age.

FOLIAGE: 2" to 4" heart shaped leaves emerging purple in spring and turning blue green and then yellow-orange in fall.

DESCRIPTION: Relatively resistant to diseases and pests, attractively foliage throughout the growing season. Stressed in poor or compacted soil and not drought tolerant.

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**Slide 58**

*Cercidiphyllum japonicum*

**Katsura Tree**

**SIZE:** 50'H x 35'W.

**HARDINESS:** zone 5 to 8.

**HABIT:** Conical becoming rounded with age.

**FOLIAGE:** 2" to 4" heart shaped leaves emerging purple in spring and turning blue green and then yellow-orange in fall.

**DESCRIPTION:** Relatively resistant to diseases and pests, attractively foliage throughout the growing season. Stressed in poor or compacted soil and not drought tolerant.

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**Slide 59**

*Corylus colurna*

**Turkish Filbert**

SIZE: 50'H x 30'W.

HARDINESS: zone 5 to 7.

HABIT: Conical, usually symmetrical.

FOLIAGE: 3" to 5" deep green leaves, dull yellow to purple in fall.

DESCRIPTION: Tolerates urban stress i.e. drought, pollution, salt etc., maintenance free, stately looking tree usually symmetrical, the nuts attract wildlife.

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**Slide 60**

*Corylus colurna*

**Turkish Filbert**

SIZE: 50'H x 30'W.

HARDINESS: zone 5 to 7.

HABIT: Conical, usually symmetrical.

FOLIAGE: 3" to 5" deep green leaves, dull yellow to purple in fall.

DESCRIPTION: Tolerates urban stress i.e. drought, pollution, salt etc., maintenance free, stately looking tree usually symmetrical, the nuts attract wildlife.

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**Slide 61**

*Fraxinus americana* 'Autumn Applause'  
**Autumn Applause White Ash**

SIZE: 55'H x 40'W.

HARDINESS: zone 5 to 8.

HABIT: Broadly ovate to rounded crown.

FOLIAGE: 3" medium green leaflets turning wine-red in fall (atypical of the species).

DESCRIPTION: Attractive street tree with minimal seeds. Excellent fall color, will tolerate partial shade. Susceptible to borers.

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**Slide 62**

*Fraxinus americana* 'Autumn Applause'  
**Autumn Applause White Ash**

SIZE: 55'H x 40'W.

HARDINESS: zone 5 to 8.

HABIT: Broadly ovate to rounded crown.

FOLIAGE: 3" medium green leaflets turning wine-red in fall (atypical of the species).

DESCRIPTION: Attractive street tree with minimal seeds. Excellent fall color, will tolerate partial shade. Susceptible to borers.

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**Slide 63**

*Fraxinus americana* 'Autumn Applause'

**Autumn Applause White Ash**

SIZE: 55'H x 40'W.

HARDINESS: zone 5 to 8.

HABIT: Broadly ovate to rounded crown.

FOLIAGE: 3" medium green leaflets turning wine-red in fall (atypical of the species).

DESCRIPTION: Attractive street tree with minimal seeds. Excellent fall color, will tolerate partial shade. Susceptible to borers.

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**Slide 64**

*Fraxinus americana* 'Autumn Purple'

**Autumn Purple Ash**

SIZE: 50'H x 45'W.

HARDINESS: zone 3 to 8.

HABIT: Broadly ovate, crown not as compact as *F. americana* 'Autumn Applause'.

FOLIAGE: 3" medium green leaflets turning orange-maroon in fall.

DESCRIPTION: Vigorous and attractive street tree often overused. Sensitive to drought and will tolerate partial shade.

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**Slide 65**

*Fraxinus americana* 'Autumn Purple'  
**Autumn Purple Ash**

**SIZE:** 50'H x 45'W.

**HARDINESS:** zone 3 to 8.

**HABIT:** Broadly ovate, crown not as compact as *F. americana* 'Autumn Applause'.

**FOLIAGE:** 3" medium green leaflets turning orange-maroon in fall.

**DESCRIPTION:** Vigorous and attractive street tree often overused. Sensitive to drought and will tolerate partial shade.

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**Slide 66**

*Fraxinus pennsylvanica* 'Patmore'  
**Patmore Green Ash**

SIZE: 55'H x 45'W.

HARDINESS: zone 3 to 8.

HABIT: Broadly ovate with medium texture.

FOLIAGE: 3" glossy green leaflets turning yellow in fall and persisting longer than most other *Fraxinus*.

DESCRIPTION: Excellent street tree tolerant of drought, salt, and pollution. Very hardy in colder regions.

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**Slide 67**

*Fraxinus pennsylvanica* 'Patmore'

**Patmore Green Ash**

SIZE: 55'H x 45'W.

HARDINESS: zone 3 to 8.

HABIT: Broadly ovate with medium texture.

FOLIAGE: 3" glossy green leaflets turning yellow in fall and persisting longer than most other *Fraxinus*.

DESCRIPTION: Excellent street tree tolerant of drought, salt, and pollution. Very hardy in colder regions.

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**Slide 68**

*Fraxinus pennsylvanica* 'Summit'

**Summit Green Ash**

SIZE: 55'H x 45'W.

HARDINESS: zone 3 to 8.

HABIT: Narrowly ovate becoming broader with age.

FOLIAGE: 3" medium green leaflets turning golden yellow in early fall.

DESCRIPTION: A vigorous selection with thick durable bark, which makes it less susceptible to mechanical damage. Excellent street tree tolerant of many adverse/urban conditions.

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**Slide 69**

*Fraxinus pennsylvanica* 'Summit'  
**Summit Green Ash**

**SIZE:** 55'H x 45'W.

**HARDINESS:** zone 3 to 8.

**HABIT:** Narrowly ovate becoming broader with age.

**FOLIAGE:** 3" medium green leaflets turning golden yellow in early fall.

**DESCRIPTION:** A vigorous selection with thick durable bark, which makes it less susceptible to mechanical damage. Excellent street tree tolerant of many adverse/urban conditions

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**Slide 70**

*Fraxinus pennsylvanica* 'Summit'

**Summit Green Ash**

SIZE: 55'H x 45'W.

HARDINESS: zone 3 to 8.

HABIT: Narrowly ovate becoming broader with age.

FOLIAGE: 3" medium green leaflets turning golden yellow in early fall.

DESCRIPTION: A vigorous selection with thick durable bark, which makes it less susceptible to mechanical damage. Excellent street tree tolerant of many adverse/urban conditions.

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**Slide 71**

*Fraxinus quadrangulata*

**Blue Ash**

SIZE: 65'H x 35'W.

HARDINESS: zone 4 to 7.

HABIT: Narrow, spreading, irregular.

FOLIAGE: 3" to 5" shiny green leaflets turning yellow to bronze in fall.

DESCRIPTION: One of the best Ash trees for drought. A Midwest native that will tolerate high soil pH and partial shade.

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**Slide 72**

*Fraxinus quadrangulato*

**Blue Ash**

SIZE: 65'H x 35'W.

HARDINESS: zone 4 to 7.

HABIT: Narrow, spreading, irregular.

FOLIAGE: 3" to 5" shiny green leaflets turning yellow to bronze in fall.

DESCRIPTION: One of the best Ash trees for drought. A Midwest native that will tolerate high soil pH and partial shade.

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**Slide 73**

*Ginkgo biloba*

**Ginkgo**

SIZE: 60'H x 35'W.

HARDINESS: zone 4 to 8.

HABIT: Spreading with an irregular outline.

FOLIAGE: 2" to 3" fan shaped, produced on spur shoots, golden yellow in fall.

DESCRIPTION: Thrives in a wide range of soils, tolerant of urban stresses, beautiful fall color. Only fruitless males should be selected. 'Princeton Sentry' is a narrow, columnar, male form excellent for street planting.

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**Slide 74**

*Ginkgo biloba*

**Ginkgo**

SIZE: 60'H x 35'W.

HARDINESS: zone 4 to 8.

HABIT: Spreading with an irregular outline.

FOLIAGE: 2" to 3" fan shaped, produced on spur shoots, golden yellow in fall.

DESCRIPTION: Thrives in a wide range of soils, tolerant of urban stresses, beautiful fall color. Only fruitless males should be selected. 'Princeton Sentry' is a narrow, columnar, male form excellent for street planting.

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**Slide 75**

*Ginkgo biloba*

**Ginkgo**

**SIZE:** 60'H x 35'W.

**HARDINESS:** zone 4 to 8.

**HABIT:** Spreading with an irregular outline.

**FOLIAGE:** 2" to 3" fan shaped, produced on spur shoots, golden yellow in fall.

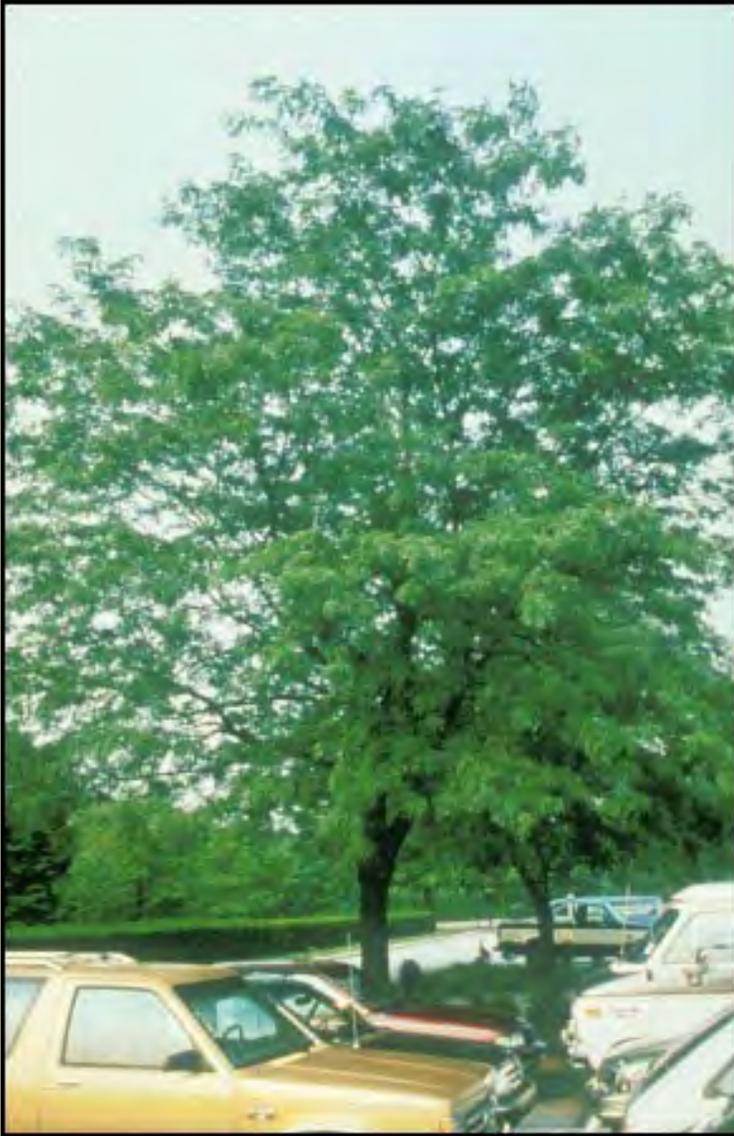
**DESCRIPTION:** Thrives in a wide range of soils, tolerant of urban stresses, beautiful fall color. Only fruitless males should be selected. 'Princeton Sentry' is a narrow, columnar, male form excellent for street planting.

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**Slide 76**

***Gleditsia triacanthos* 'Shademaster'  
Shademaster Honeylocust**

**SIZE:** 60'H X 40'W.

**HARDINESS:** zone 4 to 8.

**HABIT:** Broad, open, spreading with ascending branches.

**FOLIAGE:** Pinnately compound, 1 to 1½" leaflets turning yellow in fall.

**DESCRIPTION:** An excellent fast growing street tree with essentially no fruit, dark green leaves. One of the best honeylocuts for urban use.

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**Slide 77**

*Gleditsia triacanthos* 'Skycole'

**Skyline Honeylocust**

SIZE: 65'H x 55'W.

HARDINESS: zone 4 to 9.

HABIT: Broad ovate to pyramidal.

FOLIAGE: 2" to 3" bluish-green, pinnately compound.

DESCRIPTION: Fast growth rate, provides dappled shade for understory plantings, good street tree; one which turf will thrive under. Is often overused which may be causing severe insect problems.

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**Slide 78**

*Gleditsia triacanthos* 'Skycole'  
**Skyline Honeylocust**

**SIZE:** 65'H x 55'W.

**HARDINESS:** zone 4 to 9.

**HABIT:** Broad ovate to pyramidal.

**FOLIAGE:** 2" to 3" bluish-green,  
pinnately compound.

**DESCRIPTION:** Fast growth rate,  
provides dappled shade for understory  
plantings, good street tree; one which  
turf will thrive under. Is often  
overused which may be causing  
severe insect problems.

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**Slide 79**

*Gleditsia triacanthos* 'Skycole'

**Skyline Honeylocust**

SIZE: 65'H x 55'W.

HARDINESS: zone 4 to 9.

HABIT: Broad ovate to pyramidal.

FOLIAGE: 2" to 3" bluish-green, pinnately compound.

DESCRIPTION: Fast growth rate, provides dappled shade for understory plantings, good street tree; one which turf will thrive under. Is often overused which may be causing severe insect problems.

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**Slide 80**

*Gymnocladus dioica*  
**Kentucky Coffeetree**

SIZE: 70'H x 50'W.

HARDINESS: zone 4 to 9.

HABIT: Large, irregular ovate.

FOLIAGE: Bipinnately compound,  
subtle yellow fall color.

DESCRIPTION: A tree for large  
scale properties i.e. parks and golf  
courses. Very tolerant of air pollution.  
Seed pods produced on the female are  
large, up to 8" long, and can be a litter  
problem.

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**Slide 81**

*Gymnocladus dioica*

**Kentucky Coffeetree**

SIZE: 70'H x 50'W.

HARDINESS: zone 4 to 9.

HABIT: Large, irregular ovate.

FOLIAGE: Bipinnately compound, subtle yellow fall color.

DESCRIPTION: A tree for large scale properties i.e. parks and golf courses. Very tolerant of air pollution. Seed pods produced on the female are large, up to 8" long, and can be a litter problem.

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**Slide 82**

*Gymnocladus dioica*

**Kentucky Coffeetree**

SIZE: 70'H x 50'W.

HARDINESS: zone 4 to 9.

HABIT: Large, irregular ovate.

FOLIAGE: Bipinnately compound, subtle yellow fall color.

DESCRIPTION: A tree for large scale properties i.e. parks and golf courses. Very tolerant of air pollution. Seed pods produced on the female are large, up to 8" long, and can be a litter problem.

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**Slide 83**

*Liriodendron tulipifera*

**Tuliptree**

SIZE: 80'H x 40'W.

HARDINESS: zone 4 to 9.

HABIT: Large, conical to ovate.

FOLIAGE: 3" to 8" bright green, golden yellow in fall.

DESCRIPTION: A large tree for large-scale projects. Green-yellow tulip like flowers appear on mature specimens in late spring, usually high atop the tree. Thin bark can be easily damaged.

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**Slide 84**

*Liriodendron tulipifera*

**Tuliptree**

SIZE: 80'H x 40'W.

HARDINESS: zone 4 to 9.

HABIT: Large, conical to ovate.

FOLIAGE: 3" to 8" bright green, golden yellow in fall.

DESCRIPTION: A large tree for large-scale projects. Green-yellow tulip like flowers appear on mature specimens in late spring, usually high atop the tree. Thin bark can be easily damaged.

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**Slide 85**

*Ostrya virginiana*

**Hophornbeam**

SIZE: 35'H x 20'W.

HARDINESS: zone 4 to 8.

HABIT: Conical becoming more rounded and globose with age.

FOLIAGE: 2" to 5" simple green turning yellow in fall.

DESCRIPTION: An attractive medium size tree with gray scaly bark, tolerates shade and is grown as an understory tree. Thrives in urban settings, clusters of green nutlets resembling the fruit of the hop vine appear in summer

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**Slide 86**

*Ostrya virginiana*

**Hophornbeam**

SIZE: 35'H x 20'W.

HARDINESS: zone 4 to 8.

HABIT: Conical becoming more rounded and globose with age.

FOLIAGE: 2" to 5" simple green turning yellow in fall.

DESCRIPTION: An attractive medium size tree with gray scaly bark, tolerates shade and is grown as an understory tree. Thrives in urban settings, clusters of green nutlets resembling the fruit of the hop vine appear in summer

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**Slide 87**

*Pyrus calleryana* 'Aristocrat'

**Aristocrat Pear**

SIZE: 40'H x 30'W.

HARDINESS: zone 5 to 9.

HABIT: Broadly conical with an open habit.

FOLIAGE: 3" to 4" lustrous dark green leaves with a wavy margin.

DESCRIPTION: Superior structure compared to *Pyrus calleyano* 'Bradford' makes it less susceptible to wind breakage, also requires less pruning. Tolerates pollution and drought, abundant white blossoms appear in early spring.

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**Slide 88**

*Pyrus calleryana* 'Autumn Blaze'  
**Autumnblaze Callery Pear**

SIZE: 35'H x 25'W.

HARDINESS: zone 5 to 8.

HABIT: Ovate, becoming irregular with age.

FOLIAGE: 2" to 3" glossy green leaves turning red-orange in early fall.

DESCRIPTION: Another selection with superior branching structure, adaptable to a wide range of soils. Pink blossoms fading to white and excellent fall color.

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**Slide 89**

*Pyrus calleryana* 'Autumn Blaze'

**Autumnblaze Callery Pear**

SIZE: 35'H x 25'W.

HARDINESS: zone 5 to 8.

HABIT: Ovate, becoming irregular with age.

FOLIAGE: 2" to 3" glossy green leaves turning red-orange in early fall.

DESCRIPTION: Another selection with superior branching structure, adaptable to a wide range of soils. Pink blossoms fading to white and excellent fall color.

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**Slide 90**

*Pyrus calleryana* 'Chanticleer'

**Cleveland Select Callery Pear**

SIZE: 35'H x 15'W.

HARDINESS: zone 5 to 8.

HABIT: Narrow, conical.

FOLIAGE: 2" - 3" glossy green  
leaves turning gold-red to plum in fall.

DESCRIPTION: Tolerant of drought  
and pollution, suitable for locations  
where space to spread is limited.

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**Slide 91**

*Pyrus calleryana* 'Chanticleer'  
**Cleveland Select Callery Pear**

SIZE: 35'H x 15'W.

HARDINESS: zone 5 to 8.

HABIT: Narrow, conical.

FOLIAGE: 2" - 3" glossy green  
leaves turning gold-red to plum in fall.

DESCRIPTION: Tolerant of drought  
and pollution, suitable for locations  
where space to spread is limited.

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**Slide 92**

*Quercus bicolor*

**Swamp White Oak**

SIZE: 65'H x 60'W.

HARDINESS: zone 4 to 7.

HABIT: Rounded and broad with an open crown, often as wide as tall.

FOLIAGE: 4" - 8" flat green, pale green undersides, rounded lobes, and yellow-brown fall color.

DESCRIPTION: Tolerant of drought, soil compaction and salt, transplants easier than other oaks. The bark on younger plants is gray and scaly, becoming deeply furrowed with age.

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**Slide 93**

*Quercus bicolor*

**Swamp White Oak**

SIZE: 65'H x 60'W.

HARDINESS: zone 4 to 7.

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FOLIAGE: 4" - 8" flat green, pale green undersides, rounded lobes, and yellow-brown fall color.

DESCRIPTION: Tolerant of drought, soil compaction and salt, transplants easier than other oaks.

The bark on younger plants is gray and scaly, becoming deeply furrowed with age.

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**Slide 94**

*Quercus imbricaria*

**Shingle Oak**

SIZE: 55'H x 45'W.

HARDINESS: zone 4 to 7.

HABIT: Conical becoming broad and rounded with age.

FOLIAGE: 3" - 6" shiny dark green leaves turning yellow-brown to bronze in fall.

DESCRIPTION: Good street tree tolerant of drought and other urban stresses, slow growth rate, worthy of being used more often.

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**Slide 95**

*Quercus imbricaria*

**Shingle Oak**

SIZE: 55'H x 45'W.

HARDINESS: zone 4 to 7.

HABIT: Conical becoming broad and rounded with age.

FOLIAGE: 3" - 6" shiny dark green leaves turning yellow-brown to bronze in fall.

DESCRIPTION: Good street tree tolerant of drought and other urban stresses, slow growth rate, worthy of being used more often.

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**Slide 96**

*Quercus macrocarpa*

**Bur Oak**

SIZE: 75'H x 65'W.

HARDINESS: zone 3 to 8.

HABIT: Ovate, becoming broad and rounded with age.

FOLIAGE: 5" - 8" oblong with rounded lobes, glossy green with pale underside, yellow brown in fall.

DESCRIPTION: A large, durable tree tolerant of urban stresses and also of poor soils, will adapt to acid or alkaline soil, suitable for parks, golf courses, and wherever adequate growing space is available.

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**Slide 97**

*Quercus macrocarpa*

**Bur Oak**

SIZE: 75'H x 65'W.

HARDINESS: zone 3 to 8.

HABIT: Ovate, becoming broad and rounded with age.

FOLIAGE: 5" - 8" oblong with rounded lobes, glossy green with pale underside, yellow brown in fall.

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**Slide 98**

*Quercus macrocarpa*

**Bur Oak**

SIZE: 75'H x 65'W.

HARDINESS: zone 3 to 8.

HABIT: Ovate, becoming broad and rounded with age.

FOLIAGE: 5" - 8" oblong with rounded lobes, glossy green with pale underside, yellow brown in fall.

DESCRIPTION: A large, durable tree tolerant of urban stresses and also of poor soils, will adapt to acid or alkaline soil, suitable for parks, golf courses, and wherever adequate growing space is available.

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**Slide 99**

*Quercus meuhlenbergii*

**Chinkapin Oak**

SIZE: 65'H x 65'W.

HARDINESS: zone 5 to 8.

HABIT: Rounded with an open crown, often wider than tall.

FOLIAGE: 4" - 6" oblong-lanceolate leaves, shiny green turning yellow-brown to orange in fall.

DESCRIPTION: Good shade and specimen tree for large areas, tolerates poor soils, oak wilt may be a problem. As with all oaks, acorns can cause litter problem.

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**Slide 100**

*Quercus meuhlenbergii*

**Chinkapin Oak**

SIZE: 65'H x 65'W.

HARDINESS: zone 5 to 8.

HABIT: Rounded with an open crown, often wider than tall.

FOLIAGE: 4" - 6" oblong-lanceolate leaves, shiny green turning yellow-brown to orange in fall.

DESCRIPTION: Good shade and specimen tree for large areas, tolerates poor soils, oak wilt may be a problem. As with all oaks, acorns can cause litter problem.

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**Slide 101**

*Quercus rubra*

**Red Oak**

SIZE: 70'H x 50'W.

HARDINESS: zone 3 to 8.

HABIT: Dense rounded crown with ascending branches.

FOLIAGE: 5" - 9" shiny dark green leaves turning red-russet in fall.

DESCRIPTION: Excellent street tree tolerant of pollution, also good shade and specimen tree. Chlorosis may be a problem on alkaline soils.

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**Slide 102**

*Quercus rubra*

**Red Oak**

SIZE: 70'H x 50'W.

HARDINESS: zone 3 to 8.

HABIT: Dense rounded crown with ascending branches.

FOLIAGE: 5" - 9" shiny dark green leaves turning red-russet in fall.

DESCRIPTION: Excellent street tree tolerant of pollution, also good shade and specimen tree. Chlorosis may be a problem on alkaline soils.

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**Slide 103**

*Quercus rubra*

**Red Oak**

**SIZE:** 70'H x 50'W.

**HARDINESS:** zone 3 to 8.

**HABIT:** Dense rounded crown with ascending branches.

**FOLIAGE:** 5" - 9" shiny dark green leaves turning red-russet in fall.

**DESCRIPTION:** Excellent street tree tolerant of pollution, also good shade and specimen tree. Chlorosis may be a problem on alkaline soils.

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**Slide 104**

*Tilia americana* 'Redmond'

**Redmond American Linden**

SIZE: 60'H x 35'W.

HARDINESS: zone 3 to 7.

HABIT: Pyramidal becoming broader with age.

FOLIAGE: 4" - 8" light green simple leaves.

DESCRIPTION: Large tree for parks and golf courses, strong branching habit with little risk of storm damage, adaptable to urban conditions, pale yellow flower spikes in June.

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**Slide 105**

*Tilia americana* 'Redmond'

**Redmond American Linden**

SIZE: 60'H x 35'W.

HARDINESS: zone 3 to 7.

HABIT: Pyramidal becoming broader with age.

FOLIAGE: 4" - 8" light green simple leaves.

DESCRIPTION: Large tree for parks and golf courses, strong branching habit with little risk of storm damage, adaptable to urban conditions, pale yellow flower spikes in June.

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**Slide 106**

*Tilia cordata* 'Glenleven'

**Glenleven Littleleaf Linden**

SIZE: 60'H x 40'W.

HARDINESS: zone 3 to 8.

HABIT: Conical, nearly symmetrical.

FOLIAGE: 3" - 4" dark green leaves.

DESCRIPTION: Selected for its vigor and improved branching habit, tolerable of a wide range of soils but somewhat sensitive to drought and salt, good specimen tree and suitable for areas where adequate root space is available.

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**Slide 107**

*Tilia cordata* 'Glenleven'

**Glenleven Littleleaf Linden**

SIZE: 60'H x 40'W.

HARDINESS: zone 3 to 8.

HABIT: Conical, nearly symmetrical.

FOLIAGE: 3" - 4" dark green leaves.

DESCRIPTION: Selected for its vigor and improved branching habit, tolerable of a wide range of soils but somewhat sensitive to drought and salt, good specimen tree and suitable for areas where adequate root space is available.

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**Slide 108**

*Tilia tomentosa*

**Silver Linden**

SIZE: 65'H x 50'W.

HARDINESS: zone 4 to 8.

HABIT: Pyramidal, becoming broader with age.

FOLIAGE: 3" lustrous dark green, silver undersides show brightly when blowing in the wind.

DESCRIPTION: Tolerates heat, drought, and pollution, excellent street tree and ornamental shade tree.

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**Slide 109**

*Tilia tomentosa*

**Silver Linden**

SIZE: 65'H x 50'W.

HARDINESS: zone 4 to 8.

HABIT: Pyramidal, becoming broader with age.

FOLIAGE: 3" lustrous dark green, silver undersides show brightly when blowing in the wind.

DESCRIPTION: Tolerates heat, drought, and pollution, excellent street tree and ornamental shade tree.

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**Slide 110**

*Ulmus parvifolia*

**Lacebark Elm**

SIZE: 50'H x 35'W.

HARDINESS: zone 5 to 9.

HABIT: Ovate to vase shaped.

FOLIAGE: 1" - 2" dark green leaves turning yellow-brown in fall.

DESCRIPTION: Extremely tolerant of urban stress and resistant to Dutch elm Disease (DED). Thrives under drought conditions, and will adopt to alkaline soil, relatively free of pests and diseases.

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**Slide 111**

*Ulmus parvifolia*

**Lacebark Elm**

SIZE: 50'H x 35'W.

HARDINESS: zone 5 to 9.

HABIT: Ovate to vase shaped.

FOLIAGE: 1" - 2" dark green leaves turning yellow-brown in fall.

DESCRIPTION: Extremely tolerant of urban stress and resistant to Dutch elm Disease (DED).

Thrives under drought conditions, and will adopt to alkaline soil, relatively free of pests and diseases.

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**Slide 112**

*Ulmus parvifolia*

**Lacebark Elm**

SIZE: 50'H x 35'W.

HARDINESS: zone 5 to 9.

HABIT: Ovate to vase shaped.

FOLIAGE: 1" - 2" dark green leaves turning yellow-brown in fall.

DESCRIPTION: Extremely tolerant of urban stress and resistant to Dutch elm Disease (DED). Thrives under drought conditions, and will adopt to alkaline soil, relatively free of pests and diseases.

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**Slide 113**

*Ulmus* 'Pioneer'

**Pioneer Hybrid Elm**

SIZE: 50'H x 50'W.

HARDINESS: zone 5 to 8.

HABIT: Globose, often as wide as tall.

FOLIAGE: 3" - 4" dark green leaves turning yellow in fall.

DESCRIPTION: Shows high resistance to DED, tolerant of pollution and other urban stresses, fast grower with strong branching habit.

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**Slide 114**

*Ulmus* 'Pioneer'

**Pioneer Hybrid Elm**

SIZE: 50'H x 50'W.

HARDINESS: zone 5 to 8.

HABIT: Globose, often as wide as tall.

FOLIAGE: 3" - 4" dark green leaves turning yellow in fall.

DESCRIPTION: Shows high resistance to DED, tolerant of pollution and other urban stresses, fast grower with strong branching habit.

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**Slide 115**

*Ulmus* 'Homestead'

**Homestead Hybrid Elm**

SIZE: 60'H x 35'W.

HARDINESS: zone 5 to 8.

HABIT: Conical, narrow, branches tend to arch with age.

FOLIAGE: 3" - 4" dark green leaves turning yellow in fall.

DESCRIPTION: High resistance to DED and tolerant of most urban conditions i.e. salt, pollution compacted soil, alkaline soil, drought, narrower in habit than other *Ulmus* hybrids.

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**Slide 116**

*Ulmus* 'Homestead'

**Homestead Hybrid Elm**

SIZE: 60'H x 35'W.

HARDINESS: zone 5 to 8.

HABIT: Conical, narrow, branches tend to arch with age.

FOLIAGE: 3" - 4" dark green leaves turning yellow in fall.

DESCRIPTION: High resistance to DED and tolerant of most urban conditions i.e. salt, pollution compacted soil, alkaline soil, drought, narrower in habit than other *Ulmus* hybrids.

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**Slide 117**

*Zelkova serrata*

**Green Vase Japanese Zelkova**

SIZE: 65'H x 50'W.

HARDINESS: zone 5 to 8.

HABIT: Broad, vase shaped habit with rounded outline.

FOLIAGE: 1" - 3" bright green leaves turning bronze-red in fall.

DESCRIPTION: A fast growing, graceful tree suitable as a replacement for American Elms, tolerant of urban conditions, under extreme conditions splitting can occur at the crotch because of the narrow angle, resistant to DED. The cultivar 'Green Vase' is an excellent selection.

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**Slide 118**

*Zelkova serrata*

**Green Vase Japanese Zelkova**

SIZE: 65'H x 50'W.

HARDINESS: zone 5 to 8.

HABIT: Broad, vase shaped habit with rounded outline.

FOLIAGE: 1" - 3" bright green leaves turning bronze-red in fall.

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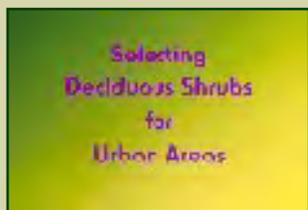
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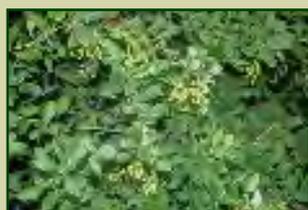
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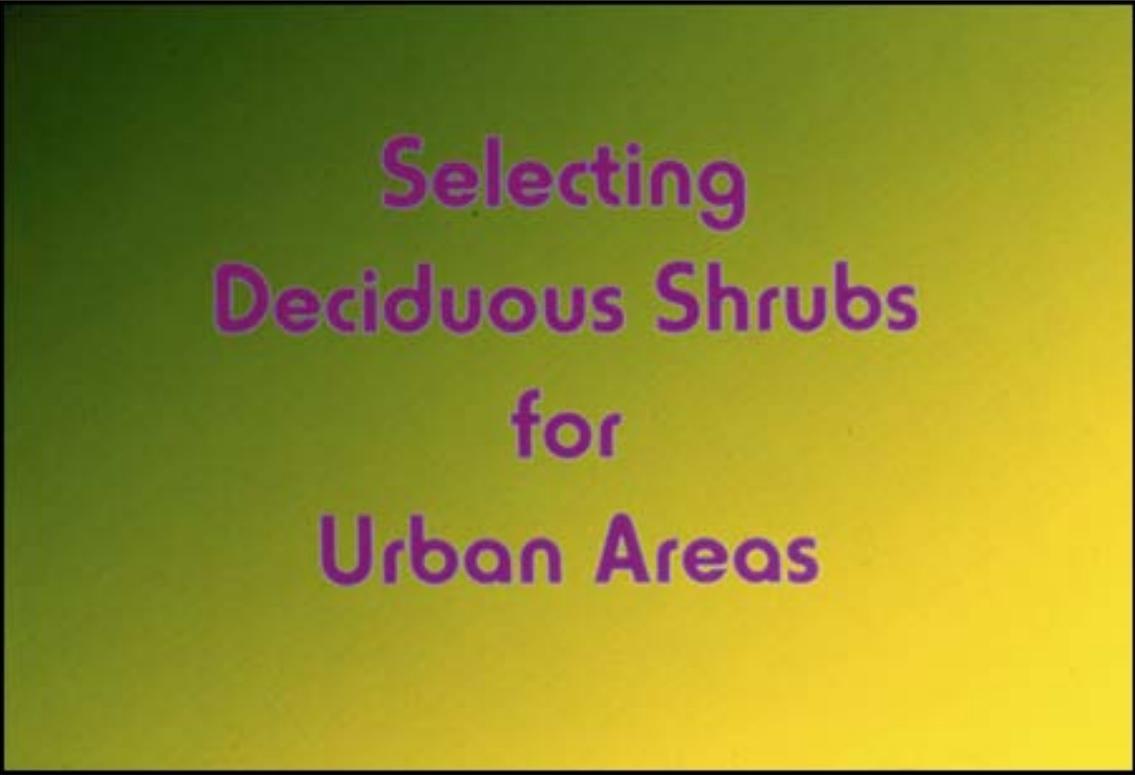
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# Selecting Deciduous Shrubs for Urban Areas

**Slide 1**

Selecting Deciduous Shrubs for Urban Areas

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## Characteristics To Consider:

- Ultimate size and habit of the plant
- Hardiness
- Light needs
- Water needs
- Soil type
- Salt tolerance
- Pest and disease resistance
- Pollution tolerance
- Ornamental features

Selecting Deciduous Shrubs for Urban Areas

### Slide 2

Characteristic to Consider:

- Ultimate size and habit of the plant
- Hardiness
- Light needs
- Water needs
- Soil type
- Salt tolerance
- Pest and disease resistance
- Pollution tolerance
- Ornamental features

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# Deciduous Shrubs

(6 feet and under)

- Berberis koreana
- Berberis x mentorensis
- Clethra alnifolia
- Deutzia gracilis 'Nikko'
- Diervilla sessilifolia
- Ilex verticillata
- Kerria japonica
- Lonicera xylosteum 'Clavey's Dwarf'
- Rosa rugosa
- Rosa 'Nearly Wild'
- Syringa meyeri 'Palibin'
- Syringa patula 'Miss Kim'
- Viburnum x juddii

Selecting Deciduous Shrubs for Urban Areas

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Shrubs With a Height of Six Feet or Less.

- Berberis koreana
- Berberis x mentorensis
- Clethra ainifolia
- Deutzia gracilis 'Nikko'
- Diervilla sessilifolia
- Ilex verticillata
- Kerria japonica
- Lonicera xylosteum 'Clavey's Dwarf'
- Rosa rugosa
- Rosa 'Nearly Wild'
- Syringa meyeri 'Palibin'
- Syringa patula 'Miss Kim'
- Viburnum x juddii

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**Slide 4**

*Berberis koreana*

**Korean Barberry**

Size: 5'H x 6'W.

Hardiness: zone 4 to 8.

Habit: Compact, ovate, slightly spreading, thorns.

Flowers/fruit: Drooping yellow clusters (racemes) 3" to 4" long, appear in spring. Bright red, 1/4" oblong berries appear in clusters 3" to 4" long and often persist into the winter.

Description: The most attractive barberry in flower. Deep red fall color persists late into the season.

Plants tolerate light shade, and adapt to a wide range of soil pH.

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**Slide 5**

*Berberis koreana*

**Korean Barberry**

Size: 5'H x 6'W.

Hardiness: zone 4 to 8.

Habit: Compact, ovate, slightly spreading, thorns.

Flowers/fruit: Drooping yellow clusters (racemes) 3" to 4" long, appear in spring. Bright red, ¼" oblong berries appear in clusters 3" to 4" long and often persist into the winter.

Description: The most attractive barberry in flower. Deep red fall color persists late into the season.

Plants tolerate light shade, and adapt to a wide range of soil pH.

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**Slide 6**

*Berberis x mentorensis*

**Mentor Barberry**

Size: 5'H x 5'W Hardiness: zone 5 to 8.

Habit: Rounded with stiff, upright branches.

Flowers/fruit: Small, yellow flowers appear in mid spring, not as showy as other Berberis but attractIle in their own right.

Description: Uniform growth makes this an excellent hedge for the Midwest. Mentor barberry is tolerant of drought and extreme heat, withstands severe pruning, and because of abundant thorns, it serves as an ideal barrier. May be semievergreen.

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**Slide 7**

*Berberis x mentorensis*

**Mentor Barberry**

Size: 5'H x 5'W Hardiness: zone 5 to 8.

Habit: Rounded with stiff, upright branches.

Flowers/fruit: Small, yellow flowers appear in mid spring, not as showy as other Berberis but attractIle in their own right.

Description: Uniform growth makes this an excellent hedge for the Midwest. Mentor barberry is tolerant of drought and extreme heat, withstands severe pruning, and because of abundant thorns, it serves as an ideal barrier. May be semievergreen.

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**Slide 8**

*Cephalanthus occidentalis*

**Buttonbush**

Size: 6'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Rounded with a slightly open crown.

Flowers/fruit: One inch white, globular flowers occur in midsummer, green nutlets ripen during late summer in place of the flowers.

Description: A plant adapted to wet sites and naturalized areas, valued for its late summer flowers, will not tolerate dry sites.

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**Slide 9**

*Cephalanthus occidentalis*

**Buttonbush**

Size: 6'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Rounded with a slightly open crown.

Flowers/fruit: One inch white, globular flowers occur in midsummer, green nutlets ripen during late summer in place of the flowers.

Description: A plant adapted to wet sites and naturalized areas, valued for its late summer flowers, will not tolerate dry sites.

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**Slide 10**

*Clethra alnifolia*

**Summersweet Clethra**

Size: 3'-6'H x 3'-6'W.

Hardiness: zone 5 to 8.

Habit: Broad, rounded to ovate, clump forming.

Flowers/fruit: Long pink or white flower spikes 2" to 6" long appear in mid summer, a time when few other shrubs are in bloom.

Description: Glossy green foliage and aromatic flowers, tolerates sun or shade and prefers moist soil, will suffer in alkaline soil.

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**Slide 11**

*Clethra alnifolia*

**Summersweet Clethra**

Size: 3'-6'H x 3'-6'W.

Hardiness: zone 5 to 8.

Habit: Broad, rounded to ovate, clump forming.

Flowers/fruit: Long pink or white flower spikes 2" to 6" long appear in mid summer, a time when few other shrubs are in bloom.

Description: Glossy green foliage and aromatic flowers, tolerates sun or shade and prefers moist soil, will suffer in alkaline soil.

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**Slide 12**

*Clethra alnifolia*

**Summersweet Clethra**

Size: 3'-6'H x 3'-6'W.

Hardiness: zone 5 to 8.

Habit: Broad, rounded to ovate, clump forming.

Flowers/fruit: Long pink or white flower spikes 2" to 6" long appear in mid summer, a time when few other shrubs are in bloom.

Description: Glossy green foliage and aromatic flowers, tolerates sun or shade and prefers moist soil, will suffer in alkaline soil.

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**Slide 13**

*Diervilla lonicera*

**Bush Honeysuckle**

Size: 4'H x 4'W.

Hardiness: zone 4 to 7.

Habit: Low, spreading, suckering.

Flowers/fruit: Pale yellow, funnel-shaped flowers appear in mid summer.

Description: A durable plant that tolerates poor alkaline soils and can be rejuvenated every spring, plants will thrive in harsh, exposed sites.

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**Slide 14**

*Ilex verticillata* 'Red Sprite', 'Jim Dandy'

**Winterberry**

Size: 6'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Dense, twiggy, upright and ovate.

Flowers/fruit: Flowers are white and appear in mid summer but are not showy. Fruit appear in late summer, bright red clusters and persists into the winter eventually being eaten by birds. Gray stems contrast nicely with the fruit.

Description: Plants are Dioecious (male and female plants required for fruit set). Plants will tolerate wet soils and prefer low pH. Because of this, many urban sites are not suitable for this species. 'Jim Dandy' is a male, and 'Red Sprite' is a female.

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**Slide 15**

*Ilex verticillata* 'Red Sprite', 'Jim Dandy'

**Winterberry**

Size: 6'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Dense, twiggy, upright and ovate.

Flowers/fruit: Flowers are white and appear in mid summer but are not showy. Fruit appear in late summer, bright red clusters and persists into the winter eventually being eaten by birds. Gray stems contrast nicely with the fruit.

Description: Plants are Dioecious (male and female plants required for fruit set). Plants will tolerate wet soils and prefer low pH. Because of this, many urban sites are not suitable for this species. 'Jim Dandy' is a male, and 'Red Sprite' is a female.

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**Slide 16**

*Ilex verticillata* 'Red Sprite', 'Jim Dandy'

**Winterberry**

Size: 6'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Dense, twiggy, upright and ovate.

Flowers/fruit: Flowers are white and appear in mid summer but are not showy. Fruit appear in late summer, bright red clusters and persists into the winter eventually being eaten by birds. Gray stems contrast nicely with the fruit.

Description: Plants are Dioecious (male and female plants required for fruit set). Plants will tolerate wet soils and prefer low pH. Because of this, many urban sites are not suitable for this species. 'Jim Dandy' is a male, and 'Red Sprite' is a female.

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**Slide 17**

*Kerria japonica*

**Japanese Kerria**

Size: 5'H x 6'W.

Hardiness: zone 5b to 7.

Habit: Soft textured loose, arching shrub with an open crown.

Flowers/fruit: Golden yellow flowers born in mid spring at the tips of new growth, 1 ½" across.

Description: Prefers dry soils and tolerates high pH. Thrives in light to heavy shade. Excellent for massing. Green stems, light green foliage, and flowers provide season interest.

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**Slide 18**

*Kerria japonica*

**Japanese Kerria**

Size: 5'H x 6'W.

Hardiness: zone 5b to 7.

Habit: Soft textured loose, arching shrub with an open crown.

Flowers/fruit: Golden yellow flowers born in mid spring at the tips of new growth, 1 ½" across.

Description: Prefers dry soils and tolerates high pH. Thrives in light to heavy shade. Excellent for massing. Green stems, light green foliage, and flowers provide season interest.

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**Slide 19**

*Rosa rugosa* 'Blanc Double de Coubert'

**Rugosa Rose**

Size: 4-5'H x 5'W.

Hardiness: zone 3 to 7.

Habit: Dense, broadly round with upright branches.

Flowers/fruit: Fragrant, white, double blooms produced nearly all summer. Dark red fruit (hips) ripen in late summer to early fall, are 1" in diameter and highly ornamental.

Description: A durable shrub rose notably tolerant of salt and relatively trouble free. One of the best white blooming types.

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**Slide 20**

*Rosa rugosa* 'Blanc Double de Coubert'

**Rugosa Rose**

Size: 4-5'H x 5'W.

Hardiness: zone 3 to 7.

Habit: Dense, broadly round with upright branches.

Flowers/fruit: Fragrant, white, double blooms produced nearly all summer. Dark red fruit (hips) ripen in late summer to early fall, are 1" in diameter and highly ornamental.

Description: A durable shrub rose notably tolerant of salt and relatively trouble free. One of the best white blooming types.

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**Slide 21**

*Rosa rugosa* 'Frau Dagmar Hastrup'

**Rugosa Rose**

Size: 4'H x 4'W.

Hardiness: zone 4 to 7.

Habit: Dense, broadly round with upright branches.

Flowers/fruit: Single, 1" pink flowers bloom all summer long, dark red fruit (hips) ripen in late summer to early fall, are 1" in diameter and highly ornamental.

Description: A prolific bloomer with rich dark green foliage and wonderful yellow to orange fall color. Shows excellent resistance to black spot and powdery mildew.

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**Slide 22**

*Rosa rugosa* 'Frau Dagmar Hastrup'

**Rugosa Rose**

Size: 4'H x 4'W.

Hardiness: zone 4 to 7.

Habit: Dense, broadly round with upright branches.

Flowers/fruit: Single, 1" pink flowers bloom all summer long, dark red fruit (hips) ripen in late summer to early fall, are 1" in diameter and highly ornamental.

Description: A prolific bloomer with rich dark green foliage and wonderful yellow to orange fall color. Shows excellent resistance to black spot and powdery mildew.

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**Slide 23**

*Rosa* 'Nearly Wild'

**Nearly Wild Hybrid Rose**

Size: 2'H x 2'W.

Hardiness: zone 3 to 7.

Habit: Compact, densely mounded.

Flowers/fruit: Single, 2" pink flowers bloom all season.

Description: One of the most durable, and because of its size, most useful hybrid roses, excellent for massing or for use as a small hedge. Plants will tolerate poor soil along with dry, hot conditions.

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**Slide 24**

*Rosa* 'Nearly Wild'

**Nearly Wild Hybrid Rose**

Size: 2'H x 2'W.

Hardiness: zone 3 to 7.

Habit: Compact, densely mounded.

Flowers/fruit: Single, 2" pink flowers bloom all season.

Description: One of the most durable, and because of its size, most useful hybrid roses, excellent for massing or for use as a small hedge. Plants will tolerate poor soil along with dry, hot conditions.

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**Slide 25**

*Syringa meyeri* 'Palibin'

**Dwarf Korean Lilac**

Size: 5'H x 4'W.

Hardiness: zone 4 to 8.

Habit: Small, mounded, compact.

Flowers/fruit: Violet-pink to purple, 4" panicles, appearing in early spring, fragrant.

Description: One of the best lilacs for flower effect and because of its compact size 'Palibin' is a great multi-purpose shrub. Very tolerant of urban stress, mildew resistant.

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**Slide 26**

*Syringa meyeri* 'Palibin'

**Dwarf Korean Lilac**

Size: 5'H x 4'W.

Hardiness: zone 4 to 8.

Habit: Small, mounded, compact.

Flowers/fruit: Violet-pink to purple, 4" panicles, appearing in early spring, fragrant.

Description: One of the best lilacs for flower effect and because of its compact size 'Palibin' is a great multi-purpose shrub. Very tolerant of urban stress, mildew resistant.

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**Slide 27**

*Syringa patula* 'Miss Kim'

**Miss Kim Manchurian Lilac**

Size: 5'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Dense, broad-rounded.

Flowers/fruit: Bluish purple, fragrant clusters 3" long born in late spring.

Description: One of the only lilacs to offer a red-purple fall color. A durable, compact, long blooming shrub; tolerates high pH and dry soil. Unlike the common lilacs, does not contract the disease powdery mildew.

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**Slide 28**

*Syringa patula* 'Miss Kim'

**Miss Kim Manchurian Lilac**

Size: 5'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Dense, broad-rounded.

Flowers/fruit: Bluish purple, fragrant clusters 3" long born in late spring.

Description: One of the only lilacs to offer a red-purple fall color. A durable, compact, long blooming shrub; tolerates high pH and dry soil. Unlike the common lilacs, does not contract the disease powdery mildew.

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**Slide 29**

*Viburnum x, juddii*

**Judd Viburnum**

Size: 6'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Upright, rounded with a dense crown.

Flowers/fruit: Creamy white flowers, 2-3" across emerge in spring and are very fragrant.

Description: A very tough Viburnum that tolerates disease and pests better than most other Viburnum. Tolerates heat, drought and other urban stresses, excellent used as a specimen, in mass, or in the shrub border.

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# Deciduous Shrubs

(Over 6 feet)

- Aesculus parviflora
- Aronia arbutifolia
- Aronia melanocarpa
- Calycanthus floridus
- Cornus sericea
- Cornus mas
- Corylus americana
- Cotinus coggygria
- Euonymus alatus
- Forsythia 'Meadowlark'
- Hamamelis vernalis
- Hamamelis virginiana
- Hydrangea paniculata
- Hydrangea quercifolia
- Rhus typhina 'Laciniata'
- Viburnum dentatum
- Viburnum dilatatum
- Viburnum prunifolium
- Viburnum trilobum

Selecting Deciduous Shrubs for Urban Areas

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### **Shrubs With a Height of Six Feet or More.**

- Aesculus parviflora
- Aronia arbutifolia
- Aronia melanocarpa
- Calycanthus floridus
- Cornus sericea
- Cornus mas
- Corylus americana
- Cotinus coggygria
- Euonymus alatus
- Forsythia 'Meadowlark'
- Hamamelis vernalis
- Hamamelis virginiana
- Hydrangea paniculata
- Hydrangea quercifolia
- Rhus typhina 'Laciniata'
- Viburnum dentatum
- Viburnum dilatatum
- Viburnum prunifolium
- Viburnum trilobum

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**Slide 31**

*Aesculus parviflora*

**Bottlebrush Buckeye**

Size: 8' to 12'H x 12'W.

Hardiness: zone 5 to 8.

Habit: Broad, mounded, suckering.

Flowers/fruit: Pink to white flower spikes, 8" to 12" long, midsummer.

Description: Large suckering shrub that needs ample space to grow, excellent specimen plant and relatively disease free, fruit set does not occur in northern areas.

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**Slide 32**

*Aesculus parviflora*

**Bottlebrush Buckeye**

Size: 8' to 12'H x 12'W.

Hardiness: zone 5 to 8.

Habit: Broad, mounded, suckering.

Flowers/fruit: Pink to white flower spikes, 8" to 12" long, midsummer.

Description: Large suckering shrub that needs ample space to grow, excellent specimen plant and relatively disease free, fruit set does not occur in northern areas.

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**Slide 33**

*Aesculus parviflora*

**Bottlebrush Buckeye**

Size: 8' to 12'H x 12'W.

Hardiness: zone 5 to 8.

Habit: Broad, mounded, suckering.

Flowers/fruit: Pink to white flower spikes, 8" to 12" long, midsummer.

Description: Large suckering shrub that needs ample space to grow, excellent specimen plant and relatively disease free, fruit set does not occur in northern areas.

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**Slide 34**

*Aronia arbutifolia*

**Red Chokeberry**

Size: 7'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Upright rounded crown, slightly suckering.

Flowers/fruit: White flower clusters 3" to 5" across appear in late spring, ¼" bright red fruit are showy during late summer and fall; they attract wildlife.

Description: Tolerates dry, wet and poor soil, and pollution, plants will tolerate light shade, beautiful in flower and with fruit.

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**Slide 35**

*Aronia arbutifolia*

**Red Chokeberry**

Size: 7'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Upright rounded crown, slightly suckering.

Flowers/fruit: White flower clusters 3" to 5" across appear in late spring, ¼" bright red fruit are showy during late summer and fall; they attract wildlife.

Description: Tolerates dry, wet and poor soil, and pollution, plants will tolerate light shade, beautiful in flower and with fruit.

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**Slide 36**

*Arorna melanocarpa*

**Black Chokeberry**

Size: 7'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Broad, rounded, spreading shrub that will colonize if allowed.

Flowers/fruit: White clusters (corymbs) 6" to 8" wide appear in spring, large, heavy clusters of black fruit appear in late summer and are eaten by birds.

Description: An "all-season" plant with glossy green foliage, beautiful flowers, attractive fruit, and a bronzy red fall color. Hardier than *A. arbutifolia* and tolerant of poor soils.

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**Slide 37**

*Aronia melanocarpa*

**Black Chokeberry**

Size: 7'H x 5'W.

Hardiness: zone 4 to 7.

Habit: Broad, rounded, spreading shrub that will colonize if allowed.

Flowers/fruit: White clusters (corymbs) 6" to 8" wide appear in spring, large, heavy clusters of black fruit appear in late summer and are eaten by birds.

Description: An "all-season" plant with glossy green foliage, beautiful flowers, attractive fruit, and a bronzy red fall color. Hardier than *A. arbutifolia* and tolerant of poor soils.

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**Slide 38**

*Calycanthus floridus*

**Common Sweetshrub**

Size: 7'H x 6'W.

Hardiness: zone 5 to 8.

Habit: Dense, broad, rounded.

Flowers/fruit: Two inch maroon red flowers appear in late spring and persist through mid-summer, small seed capsules persist into winter.

Description: Grows in sun or shade, flower buds are produced on previous season's growth.

Therefore, pruning should be performed immediately after flowering. Used for screening or as part of a shrub border.

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**Slide 39**

*Calycanthus floridus*

**Common Sweetshrub**

Size: 7'H x 6'W.

Hardiness: zone 5 to 8.

Habit: Dense, broad, rounded.

Flowers/fruit: Two inch maroon red flowers appear in late spring and persist through mid summer, small seed capsules persist into winter.

Description: Grows in sun or shade, flower buds are produced on previous season's growth.

Therefore, pruning should be performed immediately after flowering. Used for screening or as part of a shrub border.

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**Slide 40**

*Cornus sericea (Cornus stolonifera)*

**Redoiser Dogwood**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Large, rounded, multi-stemmed, spreading.

Flowers/fruit: White, flat-topped clusters (cymes) appear late spring, clusters of white fruit develop in place of the flowers and attract birds during late summer.

Description: Spreading shrub with red bark that tolerates wet sites and will colonize if allowed, removing old wood will help maintain bark color. The cultivar 'Flaviramea' is a yellow twig selection that is unfortunately prone to disease and pest problems.

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**Slide 41**

*Cornus sericea* (*Cornus stolonifera*)

**Redoiser Dogwood**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Large, rounded, multi-stemmed, spreading.

Flowers/fruit: White, flat-topped clusters (cymes) appear late spring, clusters of white fruit develop in place of the flowers and attract birds during late summer.

Description: Spreading shrub with red bark that tolerates wet sites and will colonize if allowed, removing old wood will help maintain bark color. The cultivar 'Flaviramea' is a yellow twig selection that is unfortunately prone to disease and pest problems.

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**Slide 42**

*Cornus sericea (Cornus stolonifera)*

**Redoiser Dogwood**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Large, rounded, multi-stemmed, spreading.

Flowers/fruit: White, flat-topped clusters (cymes) appear late spring, clusters of white fruit develop in place of the flowers and attract birds during late summer.

Description: Spreading shrub with red bark that tolerates wet sites and will colonize if allowed, removing old wood will help maintain bark color. The cultivar 'Flaviramea' is a yellow twig selection that is unfortunately prone to disease and pest problems.

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**Slide 43**

*Cornus mas*

**Corneliancherry Dogwood**

Size: 10' to 20'H x 15'W.

Hardiness: zone 5 to 8.

Habit: Large ovate shrub or a small multi-stemmed tree.

Flowers/fruit: Yellow flower clusters appear in early spring before leaves emerge. Bright red drupes then emerge in mid-summer, and are quickly eaten by birds.

Description: Excellent large shrub or small tree for under-story planting, plants will tolerate some sun, and if grown as a small tree, suckers will need to be removed regularly, excellent spring flower display

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**Slide 44**

*Cornus mas*

**Corneliancherry Dogwood**

Size: 10' to 20'H x 15'W.

Hardiness: zone 5 to 8.

Habit: Large ovate shrub or a small multi-stemmed tree.

Flowers/fruit: Yellow flower clusters appear in early spring before leaves emerge. Bright red drupes then emerge in mid-summer, and are quickly eaten by birds.

Description: Excellent large shrub or small tree for under-story planting, plants will tolerate some sun, and if grown as a small tree, suckers will need to be removed regularly, excellent spring flower display.

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**Slide 45**

*Cornus mas*

**Corneliancherry Dogwood**

Size: 10' to 20'H x 15'W.

Hardiness: zone 5 to 8.

Habit: Large ovate shrub or a small multi-stemmed tree.

Flowers/fruit: Yellow flower clusters appear in early spring before leaves emerge. Bright red drupes then emerge in mid-summer, and are quickly eaten by birds.

Description: Excellent large shrub or small tree for under-story planting, plants will tolerate some sun, and if grown as a small tree, suckers will need to be removed regularly, excellent spring flower display.

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**Slide 46**

*Corylus americana*

**American Hazelnut**

Size: 9'H x 8'W.

Hardiness: zone 4 to 9.

Habit: Rounded, multi-stemmed shrub with open base.

Flowers/fruit: Brown catkins in early spring; 2"-3" long. Female flowers are inconspicuous.

Description: A large shrub that needs ample space to grow, excellent orange-rust fall color, native to the Midwest, and a member of the Birch family, withstands urban conditions.

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**Slide 47**

*Corylus americana*

**American Hazelnut**

Size: 9'H x 8'W.

Hardiness: zone 4 to 9.

Habit: Rounded, multi-stemmed shrub with open base.

Flowers/fruit: Brown catkins in early spring: 2"-3" long. Female flowers are inconspicuous.

Description: A large shrub that needs ample space to grow, excellent orange-rust fall color, native to the Midwest, and a member of the Birch family, withstands urban conditions.

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**Slide 48**

*Euonymus alata*

**Burning Bush**

Size: 12'H x 12'W.

Hardiness: zone 4 to 8.

Habit: Rounded outline.

Flowers/fruit: Inconspicuous.

Description: A potentially large shrub valued for its intense red fall color. Plants tolerate alkaline soil but will not tolerate drought. The cultivar 'Compacta' is more suitable for landscape situations.

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**Slide 49**

*Euonymus alata*

**Burning Bush**

Size: 12'H x 12'W.

Hardiness: zone 4 to 8.

Habit: Rounded outline.

Flowers/fruit: Inconspicuous.

Description: A potentially large shrub valued for its intense red fall color. Plants tolerate alkaline soil but will not tolerate drought. The cultivar 'Compacta' is more suitable for landscape situations.

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**Slide 50**

*Forsythia x 'Meadolark'*

**Early Forsythia**

Size: 8'H x 8'W.

Hardiness: zone 5 to 7.

Habit: Upright, spreading, slightly arching branches.

Flowers/fruit: Brilliant yellow flowers engulf the stems in early spring.

Description: The hardiest forsythia for northern areas, after witchhazels these are the first plants to bloom, adapts to all types of soil conditions and pH ranges, withstands urban conditions and is free of pests and diseases.

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**Slide 51**

*Forsythia* x 'Meadolark'

**Early Forsythia**

Size: 8'H x 8'W.

Hardiness: zone 5 to 7.

Habit: Upright, spreading, slightly arching branches.

Flowers/fruit: Brilliant yellow flowers engulf the stems in early spring.

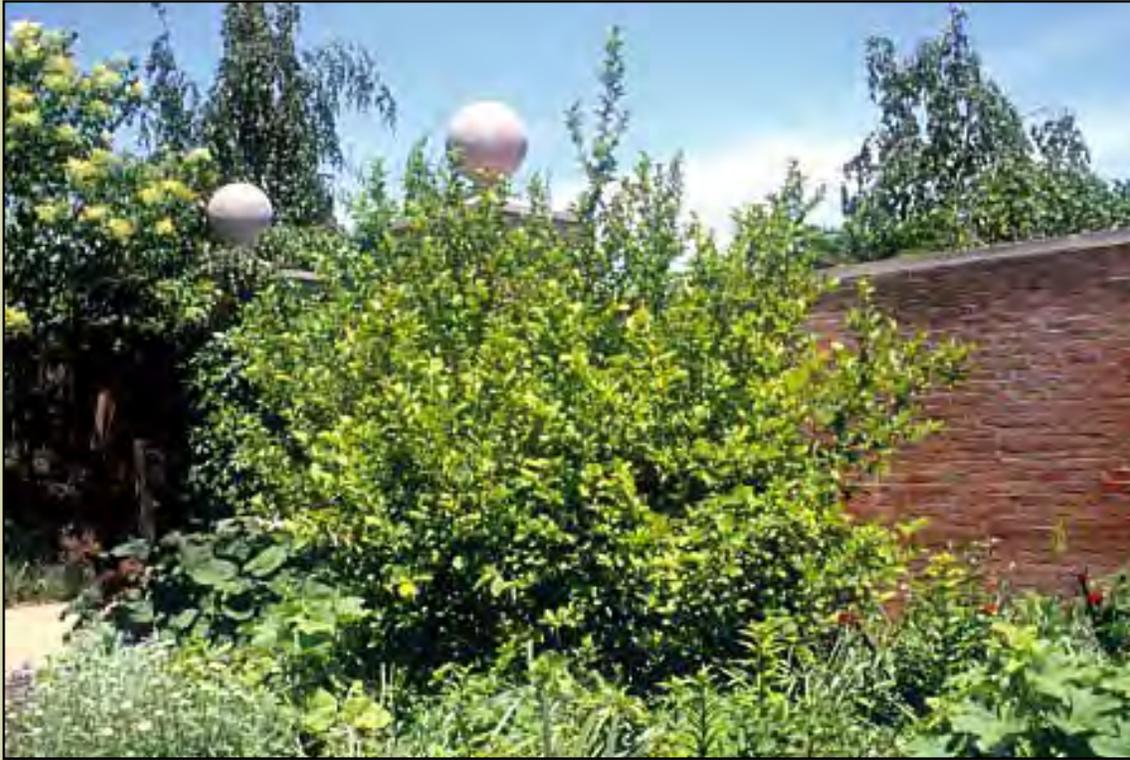
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**Slide 52**

*Hamamelis vernalis*

**Vernal Witchhazel**

Size: 8'H x 8'W.

Hardiness: zone 5 to 8.

Habit: Rounded with an irregular crown.

Flowers/fruit: Clusters of pungent, yellow to red flowers emerge in late winter.

Description: Tolerates heavy, alkaline soils, and thrives in sun or partial shade. Withstands urban stresses, and offers wonderful golden fall color.

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**Slide 53**

*Hamamelis vernalis*

**Vernal Witchhazel**

Size: 8'H x 8'W.

Hardiness: zone 5 to 8.

Habit: Rounded with an irregular crown.

Flowers/fruit: Clusters of pungent, yellow to red flowers emerge in late winter.

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**Slide 54**

*Hamamelis virginiana*

**Common Witchhazel**

Size: 15'H x 20'W.

Hardiness: zone 4 to 8.

Habit: Irregular, rounded and open.

Flowers/fruit: Tiny, fragrant, golde-yellow emerging in fall.

Description: A low maintenance, durable shrub perfect for understory planting; withstands city conditions and tolerates poor soil, one of the best shrubs for city environments.

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**Slide 55**

*Hamamelis virginiana*

**Common Witchhazel**

Size: 15'H x 20'W.

Hardiness: zone 4 to 8.

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**Slide 56**

*Hydrangea paniculata*

**Panicle Hydrangea**

Size: 8-10'H x 8'W.

Hardiness: zone 4 to 7.

Habit: Upright, broad and spreading, can be trained into a small tree.

Flowers/fruit: Large clusters to 8" long opening in July, white turning to pink.

Description: Ultimately a large shrub that needs adequate space to flourish, fast growing and flowers for long periods of time. 'Tardiflora' and 'Unique' are excellent cultivars selected for their more compact habit.

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**Slide 57**

*Hydrangea paniculata*

**Panicle Hydrangea**

Size: 8-10'H x 8'W.

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**Slide 58**

*Hydrangea quercifolia*

**Oakleaf Hydrangea**

Size: 7'H x 4'W.

Hardiness: zone 5 to 9.

Habit: Upright, mounded, spreads by weak stems drooping to the ground and rooting.

Flowers/fruit: Large panicles 6" to 12" long, white turning pink, emerging in late June.

Description: Large, coarse-textured shrub, tolerant of shade. Stems are weak and therefore, planting in high traffic areas should be avoided; attractIle orange-red to brown fall color.

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**Slide 59**

*Hydrangea quercifolia*

**Oakleaf Hydrangea**

Size: 7'H x 4'W.

Hardiness: zone 5 to 9.

Habit: Upright, mounded, spreads by weak stems drooping to the ground and rooting.

Flowers/fruit: Large panicles 6" to 12" long, white turning pink, emerging in late June.

Description: Large, course-textured shrub, tolerant of shade. Stems are weak and therefore, planting in high traffic areas should be avoided; attractive orange-red to brown fall color.

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**Slide 60**

*Rhus typhina* 'Laciniata'

**Cutleaf Sumac**

Size: 15'-20'H x 15'W.

Hardiness: zone 3 to 7.

Habit: very loose, open shrub or small tree with a flat-topped crown.

Flowers/fruit: Dense, hairy panicles 4" to 8" long, green-yellow, appear in late June, plants are Dioecious. 'Laciniata' is a female and should be planted among males of this species. Bright red, pubescent fruit clusters contrast nicely with the finely cut green foliage in late summer.

Description: A large multi stemmed shrub or small tree valued for its fruit and striking red fall color. Tolerates poor soil, high pH, pollution and drought. Needs adequate space to spread, ideal for hillside or bank planting.

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**Slide 61**

*Rhus typhina* 'Laciniata'

**Cutleaf Sumac**

Size: 15'-20'H x 15'W.

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**Slide 62**

*Viburnum dentatum*

**Arrowwood Viburnum**

Size: 8-10'H x 8'W.

Hardiness: zone 3 to 8.

Habit: Multistemmed with rounded upright appearance.

Flowers/fruit: White, flat-topped cymes, 2-4" across emerge in late spring. Bluish black, ¼" fruits ripen in late summer and are attractive to birds.

Description: Arguably the most durable Viburnum. Valued for its tolerance to pollution, salt, poor soil, and high pH. Suckers from the base and may have to be maintained to control. 'Morton' and 'Ralph senior' are excellent selections.

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**Slide 63**

*Viburnum dentatum*

**Arrowwood Viburnum**

Size: 8-10'H x 8'W.

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**Slide 64**

*Viburnum dentatum*

**Arrowwood Viburnum**

Size: 8-10'H x 8'W.

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**Slide 65**

*Viburnum dentatum*

**Arrowwood Viburnum**

Size: 8-10'H x 8'W.

Hardiness: zone 3 to 8.

Habit: Multistemmed with rounded upright appearance.

Flowers/fruit: White, flat-topped cymes, 2-4" across emerge in late spring. Bluish black, ¼" fruits ripen in late summer and are attractive to birds.

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**Slide 66**

*Viburnum dilatatum*

**Linden Viburnum**

Size: 8'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Upright, open, and often loose and somewhat leggy.

Flowers/fruit: White, flat-topped, 3-5" cymes emerge in late May, bright red 1/3" fruit emerge in early fall and often persist through winter - highly ornamental.

Description: An excellent three-season shrub valued for its flower, foliage, and fruit; superb tolerance to urban stress.

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**Slide 67**

*Viburnum dilatatum*

**Linden Viburnum**

Size: 8'H x 6'W.

Hardiness: zone 4 to 7.

Habit: Upright, open, and often loose and somewhat leggy.

Flowers/fruit: White, flat-topped, 3-5" cymes emerge in late May, bright red 1/3" fruit emerge in early fall and often persist through winter - highly ornamental.

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**Slide 68**

*Viburnum prunifolium*

**Blackhaw Viburnum**

Size: 10'H x 10'W.

Hardiness: zone 3 to 9.

Habit: large, upright, mounded, and multistemmed.

Flowers/fruit: White, flat-topped cymes, 2-4" across emerge in late May followed by pink fruit in late summer that ripen to a dark blue in fall. Fruit is edible and can be used in preserves.

Description: Tolerates dry soil and will thrive in sun or shade. A durable plant valued for its fall color which is an attractive bronze-red.

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**Slide 69**

*Viburnum prunifolium*

**Blackhaw Viburnum**

Size: 10'H x 10'W.

Hardiness: zone 3 to 9.

Habit: large, upright, mounded, and multistemmed.

Flowers/fruit: White, flat-topped cymes, 2-4" across emerge in late May followed by pink fruit in late summer that ripen to a dark blue in fall. Fruit is edible and can be used in preserves.

Description: Tolerates dry soil and will thrive in sun or shade. A durable plant valued for its fall color which is an attractive bronze-red.

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**Slide 70**

*Viburnum trilobum*

**American Cranberrybush Viburnum**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Dense, rounded, and often spreading.

Flowers/fruit: White, spring blooming, 3-4" cymes; 1/3" bright red fruits appear in early fall and persist into February. The fruit are highly ornamental and used in preserves and jellies.

Description: Offers excellent flower, fruit, and foliage; ideal for screening and as a barrier. Will not tolerate wet soil. 'Hahs' and 'Compactum' are excellent cultivars selected for their larger fruit.

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**Slide 71**

*Viburnum triloburn*

**American Cranberrybush Viburnum**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Dense, rounded, and often spreading.

Flowers/fruit: White, spring blooming, 3-4" cymes; 1/3" bright red fruits appear in early fall and persist into February. The fruit are highly ornamental and used in preserves and jellies.

Description: Offers excellent flower, fruit, and foliage; ideal for screening and as a barrier. Will not tolerate wet soil. 'Hahs' and 'Compactum' are excellent cultivars selected for their larger fruit.

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**Slide 72**

*Viburnum trilobum*

**American Cranberrybush Viburnum**

Size: 8'H x 8'W.

Hardiness: zone 3 to 7.

Habit: Dense, rounded, and often spreading.

Flowers/fruit: White, spring blooming, 3-4" cymes; 1/3" bright red fruits appear in early fall and persist into February. The fruit are highly ornamental and used in preserves and jellies.

Description: Offers excellent flower, fruit, and foliage; ideal for screening and as a barrier. Will not tolerate wet soil. 'Hahs' and 'Compactum' are excellent cultivars selected for their larger fruit

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*Rosa* 'Nearly Wild'

**Nearly Wild Hybrid Rose**

Size: 2'H x 2'W.

Hardiness: zone 3 to 7.

Habit: Compact, densely mounded.

Flowers/fruit: Single, 2" pink flowers bloom all season.

Description: One of the most durable, and because of its size, most useful hybrid roses, excellent for massing or for use as a small hedge. Plants will tolerate poor soil along with dry, hot conditions.

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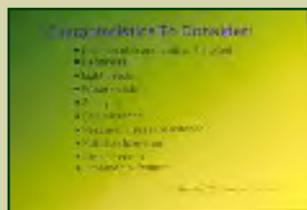
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# Section III: Selecting Conifers for Urban Areas



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# Selecting Conifers for Urban Areas

**Slide 1**  
**Selecting Conifers for Urban Areas**

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## Characteristics To Consider:

- Ultimate size and habit of the plant
- Hardiness
- Light needs
- Water needs
- Soil type
- Salt tolerance
- Pest and disease resistance
- Pollution tolerance
- Limb strength
- Ornamental features

Selecting Conifers for Urban Areas

### Slide 2

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# Major Conifer Genera

- Abies (Fir)
- Juniperus (Juniper)
- Larix (Larch)
- Picea (Spruce)
- Pinus (Pine)
- Taxodium (Baldcypress)
- Taxus (Yew)
- Thuja (Arborvitae)

Selecting Conifers for Urban Areas

## **Slide 3**

Major Conifer Genera.

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# Abies

## (Fir)

- Does not tolerate heat and humidity
- Does not tolerate pollution
- Not recommended for urban areas

Selecting Conifers for Urban Areas

### **Slide 4**

#### *Abies* (Fir)

The genus *Abies* is a member of the Pine family and is composed of about forty species of symmetrical, conical evergreen trees. Firs typically prefer a cool climate away from heat and humidity. They will not tolerate pollution and cannot withstand urban stress. For these reasons they are not recommended for use in urban areas in the Midwest.

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# Juniperus

## (Juniper)

- Requires full sun
- Tolerates pollution and salt spray
- Tolerates poor soil
- Adapts to wide range of soil pH
- Available in wide range of sizes
- Available in wide variety of shapes/forms

Selecting Conifers for Urban Areas

### Slide 5

#### *Juniperus* (Juniper)

A genus composed of about sixty species of coniferous evergreens, thirteen of which are native to the United States. Junipers range in habit from large trees to shrubs to sprawling groundcovers. Foliage color ranges from light green to dark green to blue green to yellow. They require full sun conditions and are excellent plants for urban areas, as they will tolerate pollution, salt spray, poor soil, and a wide range of soil pH. Junipers can be used as hedges, screens, groundcovers, specimens, or in mass. The two native species listed, *Juniperus horizontalis*, and *Juniperus virginiana* are more susceptible to disease and pest problems than the non-native species. Superior cultivars of these species should be selected.

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**Slide 6**

***Juniperus chinensis***  
**Chinese Juniper**

A large conical tree reaching 50'x 20'.  
Generally too large for landscape situations  
- selected varieties are recommended  
below. The species as well as the selections  
are hardy to zone 4.

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**Slide 7**

***Juniperus chinensis***  
**Chinese Juniper**

'Iowa'

An upright, pyramidal form with a somewhat loose habit; plants reach 12'x 6' and offer year-round blue-green foliage; resistant to Phomopsis.

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**Slide 8**

***Juniperus chinensis***  
**Chinese Juniper**

'Mountbatten'

Stiff, narrowly upright reaching 18'x 7', foliage is pale gray to green, and plants are tolerant of pollution and heat. A tough juniper for city conditions.

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**Slide 9**

***Juniperus chinensis***

**Chinese Juniper**

'Maney'

A large, semi-upright, shrub type with bluish green foliage reaching 7' x 6'. A female with ornamental cones, one of the best for cold hardiness and salt tolerance.

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**Slide 10**

***Juniperus chinensis***

**Chinese Juniper**

'Mint Julip'

Bright, mint green foliage with attractive bluish cones reaching 6'x 6'. Often mislabeled as 'Sea Green'. Not a dwarf. Excellent for massing, and planting in shrub borders.

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**Slide 11**

***Juniperus chinensis***

**Chinese Juniper**

'Mint Julip'

Bright, mint green foliage with attractive bluish cones reaching 6'x 6'. Often mislabeled as 'Sea Green'. Not a dwarf. Excellent for massing, and planting in shrub borders.

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**Slide 12**

***Juniperus chinensis***

**Chinese Juniper**

'Kallay's Compact'

A compact, flat-topped, spreading selection of a pfitzer. Maintains good winter color and reaches 4' in height and nearly 7' in width.

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**Slide 13**

***Juniperus chinensis***

**Chinese Juniper**

var. procumbens 'Nana'

A very tight, compact, mat-forming selection with a trailing habit. Offers attractive gray-green foliage with a coarse, prickly texture. Plants mound in the center. A very durable plant, excellent for urban conditions.

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**Slide 14**

***Juniperus chinensis***

**Chinese Juniper**

var. *sargentii* 'Glauca'

Attractive dwarf form reaching 2'x 6' with blue-gray foliage. Branches are ascending with a feathery appearance. Plants are highly durable, and this cultivar is considered by many to be the best juniper available.

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**Slide 15**

***Juniperus chinensis***

**Chinese Juniper**

var. *sargentii* 'Viridis'

Similar in size and habit to var. *sargentii* 'Glauca' but with green foliage; another excellent plant for the urban environment.

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**Slide 16**

***Juniperus chinensis***  
**Chinese Juniper**

'Fairview'

A tall, narrow, upright form with attractive silver-blue cones appearing in late summer. One of the hardiest *Juniperus chinensis* types.

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**Slide 17**

***Juniperus communis***

**Common Juniper**

The species is a broad, upright, rounded tree reaching 20' x 10' not suitable for landscape use. Selected varieties are recommended. Leaves of this species are long and needlelike. Tolerates high pH levels and is hardy as far north as zone 2.

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**Slide 18**

***Juniperus communis***

**Common Juniper**

'Repanda'

A low sprawling type perfect for cascading over walls. Maintains rich green color throughout the year, and will thrive in the worst of soils.

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**Slide 19**

***Juniperus communis***

**Common Juniper**

var. depressa

Referred to as Common Oldfield Juniper, more upright and open than 'Repanda' and reaching sizes of 5'x 6'. Branches radiate at a 45-degree angle similar to a pfitzer and leaves are lighter green than 'Repanda'. Plants are capable of thriving in poor, sandy or gravelly soil.

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**Slide 20**

***Juniperus horizontalis***

**Creeping Juniper**

A native species that suffers severely from Phomopsis blight. All selections are low growing, mat forming groundcovers with trailing branches. Hardy from zone 3 to 8, plants are valued for their adaptability to sandy and rocky soil. Plants withstand hot, dry conditions, and are ideal for slope planting.

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**Slide 21**

***Juniperus horizontalis***

**Creeping Juniper**

'Wiltonii'

The most tolerant of the horizontalis types to Phomopsis blight. A fast growing form with intense silver-blue foliage turning purplish in winter. Plants are mat-forming reaching heights of only 6-8 inches.

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**Slide 22**

***Juniperus sabina***

**Savin Juniper**

Like other junipers, the species is not suitable for landscape use because of its large spreading habit and the poor appearance of the foliage. Hardy from zone 4 to 7, Savin junipers withstand urban conditions and will thrive in open, hot, sunny sites with high soil pH.

'Calgary Carpet'

A low growing, soft textured juniper with light green foliage and uniform habit. Attains a size of 2 1/2' x 6'. Resistant to Phomopsis blight.

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**Slide 23**

***Juniperus sabina***

**Savin Juniper**

'Broadmoor'

An excellent selection for urban areas. The habit is wide spreading and mounding in the center. Grows to 3' high and can spread up to 10'. Resists Phomopsis. Foliage is deep green with juvenile foliage appearing silver-gray.

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**Slide 24**

***Juniperus sabina***

**Savin Juniper**

'Buffalo'

A low, mat-forming selection reaching only 10-12" high with a spread of up to 6'. Foliage is green-yellow and feathery. A female selection with numerous, bluish-bloomy cones ¼" in diameter.

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**Slide 25**

***Juniperus virginiana***

**Eastern Red Cedar**

Another native species found growing along roadsides throughout the Midwest and the East. An upright tree with a single leader reaching 40-50' in height and 20-25 feet in width. The species should not be grown as a landscape plant because of its disease problems; selected cultivars are recommended. Valued for its fragrant heartwood which is used for cedar chests, closets.

**'Cancertii'**

A slow growing, loosely pyramidal form with dark green foliage. Plants reach 20-25' high with a 15' spread resistant to bagworm but susceptible to rust. Habit becomes loose and spreading with age; plants are very attractive and are ideal for accent or specimens.

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# Larix (Larch)

- Does not tolerate poor soil
- Does not tolerate pollution
- Best used in large open spaces
- Not recommended for urban areas

Selecting Conifers for Urban Areas

## Slide 26

### *Larix* (Larch)

A small group of deciduous conifers which are hardy from zone 2 to 6 and are members of the pine family. Larches are best reserved for large open spaces where they have adequate root space. They will thrive in wet or dry locations but will not tolerate heavy clay soil or polluted areas. Larches are not recommended for urban areas.

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# Picea

## (Spruce)

- Well adapted to urban areas
- Tolerates pollution and salt spray
- Tolerates windy conditions
- Tolerates heavy clay soils
- Adapts to wide range of soil pH
- Available in wide range of sizes

Selecting Conifers for Urban Areas

### **Slide 27'Cancertii'**

A genus of about forty-five species of dense, usually pyramidal evergreen. Spruces are well adapted for urban conditions and will tolerate a wide range of soil types. They tolerate heavy winds and make excellent screens. *Picea omorika* and *Picea pungens* are more tolerant of dry conditions than other species. Spruces perform well in the heavy clay soils of the Midwest and offer a range of foliage colors from light green to dark green to bright blue.

### ***Picea abies***

#### **Norway Spruce**

An upright, narrowly pyramidal tree attaining heights of 70 to 80 feet. Branches become pendulous with age. Cones are the longest of the spruces - 6 to 8 inches long. A very formal tree with dark green, year-round foliage. Selections have the same cultural needs as the species. Hardy to zone 3, they require moist, well-drained soil in a relatively cold climate. If used as a hedge, plants should be pruned when young.

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**Slide 28**

***Picea abies***

**Norway Spruce**

'Cupressina' (Cypress Spruce)

A tall, narrow, upright form reaching 40 to 50 feet high and only 10 to 15 feet in width. Branches are ascending with soft needles. Excellent for tight spaces with overhead room.

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**Slide 29**

***Picea abies***

**Norway Spruce**

'Cupressina' (Cypress Spruce)

A tall, narrow, upright form reaching 40 to 50 feet high and only 10 to 15 feet in width. Branches are ascending with soft needles. Excellent for tight spaces with overhead room.

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**Slide 30**  
***Picea abies***  
**Norway Spruce**

'Mucronata'

A dwarf compact selection as wide as tall. Plants can reach 15 feet in height and nearly the same in width. Slow growing with a rather squat appearance.

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**Slide 31**

***Picea abies***

**Norway Spruce**

'Nidiformis' (Birds Nest Spruce)

A dwarf, spreading form that reaches only 3 to 4 feet in height and 4 to 5 feet in width. Plants are compact and very tightly branched. 'Nidiformis' is a very durable dwarf conifer.

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**Slide 32**

***Picea abies***

**Norway Spruce**

'Pendula' (Weeping Norway Spruce)

Young plants need to be staked and will ultimately grow as high as the stake. Branches then cascade to the ground and develop a sprawling, prostrate habit. 'Pendula' is an interesting and eye-catching specimen plant.

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**Slide 33**

***Picea abies***

**Norway Spruce**

'Pendula' (Weeping Norway Spruce)

Young plants need to be staked and will ultimately grow as high as the stake. Branches then cascade to the ground and develop a sprawling, prostrate habit. 'Pendula' is an interesting and eye-catching specimen plant.

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**Slide 34**

***Picea glauca* var. *densata***

**Black Hills Spruce**

A naturally occurring form resembling Norway Spruce and reaching 30 to 40 feet high at maturity. Habit is more dense and compact than the species. Hardy to zone 3.

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**Slide 35**

***Picea omorika***  
**Serbian Spruce**

The narrowest of all spruce. A very graceful tree with pendulous branches and gray-green foliage. Also the most adaptable spruce, tolerant of pollution and other urban conditions. Hardy to zone 5.

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**Slide 36**

***Picea pungens***

**Colorado Spruce**

A coarse-textured, pyramidal upright tree hardy as far north as zone 2. Attaining a height of 60 feet and a width of 20 feet, Colorado spruce is ideally used as a windbreak or a specimen. Plants withstand urban stress and are tolerant of poor soil and hot and dry conditions. Much variation in foliage color occurs in seed-grown plants, resulting in trees with various shades of blue, gray and green foliage.

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**Slide 37**  
***Picea pungens***  
**Colorado Spruce**

forma glauca

A naturally-occurring selection known as Colorado Blue Spruce. Foliage is bright blue, and plants must be vegetatively propagated to retain color; same cultural needs as the species.

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**Slide 38**

***Picea pungens***

**Colorado Spruce**

forma glauca

A naturally-occurring selection known as Colorado Blue Spruce. Foliage is bright blue, and plants must be vegetatively propagated to retain color; same cultural needs as the species.

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**Slide 39**

***Picea pungens***

**Colorado Spruce**

'Hoopsii'

A dense, glaucous blue selection reaching 30' high and 15' wide. A narrow selection perfect as an accent plant and more suitable for tree lawn planting than other selections. Arguably the brightest and bluest blue spruce available.

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**Slide 40**

***Picea pungens***

**Colorado Spruce**

'Hoopsii'

A dense, glaucous blue selection reaching 30' high and 15' wide. A narrow selection perfect as an accent plant and more suitable for tree lawn planting than other selections. Arguably the brightest and bluest blue spruce available.

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**Slide 41**  
***Picea pungens***  
**Colorado Spruce**

'Koster'

A very durable pyramidal form reaching 30 feet high and 20 feet wide. Foliage is steel blue and prickly. Probably the most widely used blue spruce.

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**Slide 42**  
***Picea pungens***  
**Colorado Spruce**

'Montgomery'

A dwarf, compact selection forming a broad conical shape reaching 15 feet high and 12 feet wide. Foliage is silver-blue and quite striking.

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**Slide 43**

***Picea pungens***

**Colorado Spruce**

'Montgomery'

A dwarf, compact selection forming a broad cone reaching 15 feet high and 12 feet wide. Foliage is silver-blue and quite striking.

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# Pinus

## (Pine)

- Requires full sun
- Tolerates windy conditions
- Tolerates heavy clay soils
- Available in wide range of sizes
- Suitable as screens and windbreaks
- Selected species do not tolerate alkaline soils
- Selected species are prone to disease

Selecting Conifers for Urban Areas

### **Slide 44**

#### ***Pinus (Pine)***

Comprising approximately 90 species, 41 being native to the United States, the pines are generally considered more durable than spruces and firs. Pines require full sun and will tolerate a wide range of soil pH. Leaves (needles) of all pines are grouped in clusters (fascicles) of 2, 3, or 5. The 2-needle pines are generally more tolerant of urban conditions than the 3-needle types, while the 3-needle types are more tolerant than the 5-needle types. Pines make excellent hedges, screens and even specimens. Mass plantings of a single species should be avoided because of poor air circulation, risk of disease, and unwanted shade.

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**Slide 45**  
***Pinus cembra***  
**Swiss Stone Pine**

Slow-growing form with a narrow habit; a 25-foot tree may be only 6 to 8 feet wide. Two to three inch cones mature the third year with edible pine nuts. Tolerant of high pH and pollution; 5-needle type, hardy to zone 4.

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**Slide 46**

***Pinus koraiensis***

**Korean pine**

A 5-needle type with white bands on each needle which give the plant a glaucous appearance. One of the most cold-hardy pines (z2). Attains a height of 40 feet and develops an open habit with age.

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**Slide 47**

***Pinus leucodermis***

**Bosnian Pine**

A slow-growing form with dark green foliage and light gray bark. Plants reach 30 feet high and 20 feet wide; more durable than Austrian Pine but not as vigorous. A 2-needle type hardy to zone 5.

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**Slide 48**

***Pinus mugo***

**Mugo Pine**

A variable species growing to 30 feet high and 20 feet wide. Seed variation results in dwarf plants growing only one to two feet high. A 2-needle type hardy to zone 2 and tolerant of many urban stresses including pollution, high pH, poor soil, and salt. When using dwarfs, select only vegetatively propagated plants.

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**Slide 49**

***Pinus mugo***

**Mugo Pine**

'Pumilio'

A semi-dwarf growing 4 feet high and 6 feet wide; same cultural requirements as the species.

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**Slide 50**  
***Pinus nigra***  
**Austrian Pine**

A 2-needle type attaining a height of 40 feet high and a width of 30 feet. Tolerant of pollution, salt, poor soil, high pH, and dying winter winds. Susceptible to Diplodia tip blight, a disease which kills new buds and shoots. Hardy to zone 4.

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**Slide 51**

***Pinus peuce***

**Macedonian Pine**

A formal columnar tree that spreads with age. A 5-needle type closely resembling white pine, but not as open in habit. Grows to 50 feet high and 35 feet wide. Hardy to zone 5.

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**Slide 52**  
***Pinus strobus***  
**White Pine**

A large pyramidal tree becoming flat-topped and open with age. A 5-needle type reaching 80 feet in the wild but usually 50 feet under landscape conditions. Of the pines, white pines are the least tolerant of urban stress. On soils with high pH, chlorosis occurs, and on windy sites leaf scorch can be a problem. White pine is a picturesque tree with a graceful habit but is not well adapted to the urban environment.

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**Slide 53**  
***Pinus strobus***  
**White Pine**

A large pyramidal tree becoming flat-topped and open with age. A 5-needle type reaching 80 feet in the wild but usually 50 feet under landscape conditions. Of the pines, white pines are the least tolerant of urban stress. On soils with high pH, chlorosis occurs, and on windy sites leaf scorch can be a problem. White pine is a picturesque tree with a graceful habit but is not well adapted to the urban environment.

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**Slide 54**

***Pinus sylvestris***

**Scotch Pine**

A wide-spreading, flat-topped tree that is more pyramidal in youth. Grows 30 to 40 feet high and up to 30 feet wide. A 2-needle type hardy to zone 3. Foliage is bluish green with short needles. The only pine with orange bark. Also susceptible to Diplodia tip blight.

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**Slide 55**

***Pinus sylvestris***

**Scotch Pine**

A wide-spreading, flat-topped tree that is more pyramidal in youth. Grows 30 to 40 feet high and up to 30 feet wide. A 2-needle type hardy to zone 3. Foliage is bluish green with short needles. The only pine with orange bark. Also susceptible to Diplodia tip blight.

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**Slide 56**

***Pinus sylvestris***

**Scotch Pine**

'Watereri'

A semi-dwarf mounding form with similar features as the species. Grows to 12 feet with an 8-foot spread and is more suitable for landscape situations than the species; an excellent specimen or accent plant.

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# Taxodium (Baldcypress)

- Deciduous conifer
- Adapts to wet conditions
- Does not tolerate alkaline soils
- Suitable for large open spaces
- Excellent ornamental qualities

Selecting Conifers for Urban Areas

## Slide 57

### ***Taxodium* (Baldcypress)**

The geographic range of the Baldcypress is vast. Native to swamps and bogs in areas of zone 8, the species will thrive as far north as southern Canada. One of the few deciduous conifers available, Baldcypress will grow in standing water and can also adapt to dry soil. Excellent for large open spaces such as parks and golf courses. Can be used as a street tree, though in highly alkaline soils trees will suffer from chlorosis.

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**Slide 58**  
***Taxodium distichum***  
**Baldcypress**

Under landscape conditions baldcypress can reach 40 to 50 feet high and 20 feet wide. A very slender and graceful tree with beautiful yellow green foliage in spring, darkening in summer, and turning bronze-brown in fall.

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**Slide 59**

***Taxodium distichum***

**Baldcypress**

Under landscape conditions baldcypress can reach 40 to 50 feet high and 20 feet wide. A very slender and graceful tree with beautiful yellow green foliage in spring, darkening in summer, and turning bronze-brown in fall.

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**Slide 60**  
***Taxodium distichum***  
**Baldcypress**

'Shawnee Brave'

A tall, narrow form reaching 60 feet high and only 15 to 18 feet wide. Has excellent possibilities as a street tree.

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**Taxus**  
(Yew)

- Highly resistant to insects and disease
- Tolerates urban conditions
- Tolerates poor soils
- Tolerates drought
- Thrives in sun or shade
- Does not tolerate wet soil conditions
- Tolerates shaping and shearing

Selecting Conifers for Urban Areas

### **Slide 61**

#### ***Taxus* (Yew)**

Popular shrubs valued for their hardiness, resistance to insects and disease, and durability. Often overused in foundation plantings, yews can be found in almost any neighborhood in the Midwest. Yews have excellent year round color. They offer a wide range of forms and a slow to medium growth rate. They will tolerate dry and moist soil but will suffer if conditions are wet. Yews thrive in sun or shade but will not tolerate harsh winds.

#### ***Taxus x media***

#### **Aglojapanese Yew**

A variable species ranging in habit from broad spreading, to upright, pyramidal to columnar. Slow growing species hardy to zone 4.

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**Slide 62**

***Taxus x media***

**Aglojapanese Yew**

'Densiformis'

A broad, spreading form twice as wide as high. Somewhat susceptible to winter burn. Plants grow 3 to 4 feet high and twice as wide.

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**Slide 63**

***Taxus x media***

**Aglojapanese Yew**

'Tauntonii'

One of the best for cold hardiness and tolerant of winter burn. Plants grow to four feet high and 6 feet wide without pruning; develops an open habit with age. Discolors in winter.

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**Slide 64**

***Taxus x media***

**Aglojapanese Yew**

'Wardii'

A slow growing, compact form that is spreading and flat-topped. Plants can spread up to 15 feet if left unpruned. Foliage remains deep green year-round; an excellent performer.

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**Slide 65**

***Taxus cuspidata***  
**Japanese Yew**

A variable species with habit ranging from pyramidal to columnar, to broadly spreading or mounding. Hardy to zone 4, Japanese yews are excellent for massing or in a hedge. They have the same cultural needs as the species and with age they develop an attractive red-brown bark that peels off in thin strips.

**'Capitata'**

A very common, broadly pyramidal form reaching 20 feet high and 10 feet wide. Must be pruned when young to develop a dense habit. Maintains deep green color year-round.

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# Thuja

## (Arborvitae)

- Suitable for hedges and screens
- Requires full sun
- Tolerates shearing
- Available in a wide range of sizes
- Available in a variety of shapes/forms
- Selected species susceptible to snow damage

Selecting Conifers for Urban Areas

### **Slide 66**

#### ***Thuja* (Arborvitae)**

Outstanding plants for hedges and screening, the Arborvitae offer various sizes and forms with varying foliage color. Five species are native to North America but only two are recommended for urban use. Arborvitae require full sun but will tolerate partial shade. In dense shade, plants lose their form and become loose and open in habit. Plants respond well to shearing which should be performed in spring before the flush of new growth occurs. Arborvitae tolerate wet to dry soil but will not thrive under extreme conditions.

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**Slide 67**

***Thuja occidentalis***

**American Arborvitae**

A variable species ranging in height for 2 feet to 40 feet. Hardy from zone 3 to 7, American arborvitae are densely branched trees or shrubs with dark green sprays of foliage that have a tendency to turn yellow-brown in winter. Most *Thuja* lose their form with age developing a loose, natural appearance.

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**Slide 68**

***Thuja occidentalis***

**American Arborvitae**

'Hetz Midget'

A small, mounding, globe-shaped selection reaching 3 feet by 3 feet. Maintains rich green color year-round.

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**Slide 69**

***Thuja occidentalis***

**American Arborvitae**

'Hetz Wintergreen'

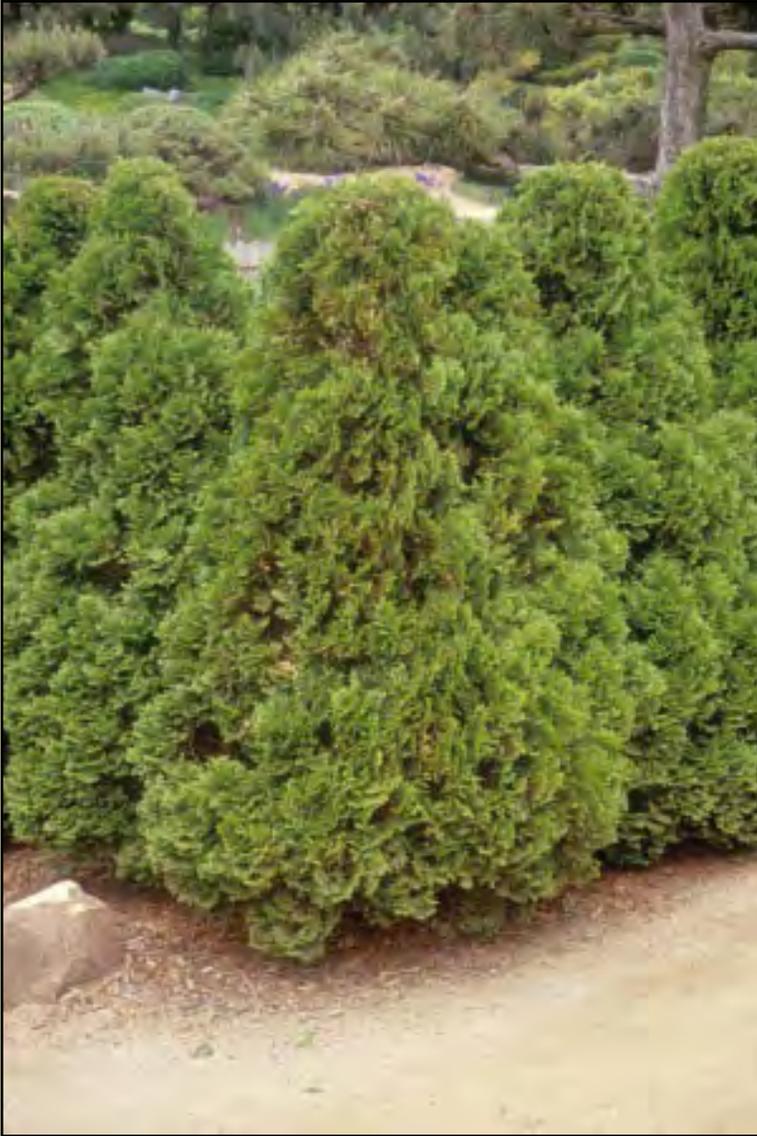
A tall, narrow form reaching 25 feet high and only 5 feet wide. Plants have a single trunk, reducing the problem of broken limbs due to heavy, wet snow in winter. Most other forms are multi-branched, which results in broken limbs because of snow load. An excellent selection with a rich green color.

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**Slide 70**

***Thuja occidentalis***

**American Arborvitae**

'Holmstrup'

A slow-growing narrowly pyramidal form reaching 6 feet high and 3 feet wide. Plants have tightly branched bright green foliage with vertically arranged sprays; excellent for low hedges.

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**Slide 71**  
***Thuja occidentalis***  
**American Arborvitae**

'Nigra'

A large pyramidal form reaching 20 feet high and 5 feet wide. One of the best for deep green winter color.

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**Slide 72**

***Thuja occidentalis***

**American Arborvitae**

'Smaragd'

Referred to in the trade as 'Emerald Green'; a medium sized pyramidal form with densely branched sprays of foliage. Slight discoloration in winter but plants remain attractive year-round.

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**Slide 73**

***Thuja occidentalis***

**American Arborvitae**

'Techny'

A broad pyramidal form reaching 8 feet high and 5 feet wide. Plants maintain beautiful deep green winter color; ideal for hedges or screens.

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**Slide 74**  
***Thuja occidentalis***  
**American Arborvitae**

**'Wareana'**

An extremely hardy selection ideal for northern areas. Plants have low pyramidal habit with bright green foliage. 'Wareana' will grow to 5 feet high and 3 to 4 feet wide.

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**Slide 75**

***Thuja plicata***

**Western Arborvitae**

Growing up to 100 feet in the wild, plants typically reach 30 to 50 feet under landscape situations and retain their branches and foliage to the ground. Tolerant of a wide range of soil types. Plants prefer moist conditions to maintain vigor; on dry sites growth is stunted. Maintains color better than most *Thuja occidentalis* types.

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