ASH, HACKBERRY AND KATSURATREE OFFER ELM'S URBAN ADAPTABILITY

By Douglas Chapman, Horticulturist, Dow Gardens, Midland, MI

Ash (*Fraxinus*), Hackberry (*Celtis*), and Japanese Katsuratree (*Cercediphyllum*) are three trees which offer adaption to many urban conditions (as did elm), be it park or landscape tree.

White Ash *(Fraxinus americana)* is a rapid growing tree which is easy to transplant. When young, it is a rather upright, oval tree that when reaching maturity (between 70 and 90 feet) becomes somewhat open and round. It often increases 3 to 5 feet in height per year when young. The summer foliage is somewhat bright green with fall color being quite exciting, ranging from a good clear yellow to purple. The insect problems include ash flower gall, scale, and, more significantly, ash and lilac borer. But it must be stressed that ash and lilac borer are only problems on trees which are not in good vigor. White Ash presently is showing some susceptibility to sulfur dioxide and ozone. 'Autumn Purple' White Ash, a male, thus seedless form, develops deep purple or magenta fall color. With increasing frequency, this plant has been showing problems of graft incompatibility or incongeniality, manifested by longitudinal cracking at or near the graft. Species White Ash not only has potential as a park tree, but also integrates well in lowland soils, fitting many urban landscapes as a specimen or border tree.

Green Ash *(F. pensylvanica lanceolata)* is a 50- to 60-foot tree with dense foliage. It displays a round habit of growth when old, yet pyramidal through early maturation. The fall color is a good clear yellow which can be a major addition to any landscape. Green Ash will grow in almost any soil, tolerating wet soils extremely well, while showing good tolerance to high pH and sodium or calcium chloride concentrations. Further, Green Ash is very sensitive to fluorides, slightly sensitive to ozone, and extremely tolerant of sulfur dioxide, making it an exceptional urban tree. Scale and borer can be a problem but somewhat less than we normally see on White Ash. 'Marshall's Seedless' Green Ash, a male green ash, has dark green foliage in the summer with outstanding clear yellow fall color. This seedless form again shows little problem with borers. Its habit is somewhat pyramidal when young, showing great potential as a street or border tree. 'Summit' Green Ash, with a strong central leader, has a somewhat symmetrical habit of growth. The plant is female, thus producing many seedlings, but is almost an ideal street tree. It has no problems with graft incompatibility.

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Blue Ash *(F. quadrangulata)* has a somewhat irregular crown, reaching 50 to 75 feet in height. Although slower growing than the other ashes, it adapts well to wet-heavy clay, high pH soils. Ash borer can be a problem spring or fall, but, more significantly, oystershell scale and plant bug have caused major problems which should limit the wholesale use of this particular native species. The tree is outstanding for its dark blue-green summer foliage, but usually has very pale or no fall color. 'Kimberly' Blue Ash, a somewhat recent introduction, has a more uniform rounded habit of growth. The cultivar grows more rapidly, being landscape effective in street or park conditions as a specimen or mass plantings.

European Ash *(F. excelsior)* is a rounded tree, reaching 70 to 80 feet in height. It is extremely tolerant of urban conditions. It has good rich foliage in the summer, which remains late in the fall, thus developing little or no fall color. European Ash thrives on moist, loamy, alkaline soils found throughout much of the midwest. The main drawback in using European Ash is its extreme susceptibility to borer. In fact, even under ideal conditions, pest-free plants are rarely found. 'Hessei' European Ash, a vigorous grower with dark green summer foliage and a somewhat upright, oval habit, has been reported to show good resistance to borers, but our experience in central Michigan shows it is not much more resistant than species of European Ash.

Of the four ash species normally used in the landscape, Green Ash (*F. pensylvanica lanceolata*) is by far the best selection. It is a rapid grower that tolerates urban conditions, e.g. air pollutants, salt, etc., is less susceptible to borers, and grows well in wet, high pH soils, rarely showing ill effects from calcium or sodium chloride, applied for snow removal. Its cultivar, 'Marshall's Seedless' Green Ash, is an exciting street or park tree, not used to its full extent. Although ash fills an important niche in our landscape, certainly their wholesale use should be limited to plants showing best adaption to urban conditions. If there is such a thing as ranking from top to least desirable, Green Ash, White Ash, Blue Ash, and European Ash would be the order. Although borers have been reported to be a problem with all ash types, European Ash is certainly the most susceptible, with the other ash showing decreased susceptibility, in fact, almost immunity, if plants are kept in a healthy-vigorous state. Oystershell and other scales have caused some problems in the past, but the simple application of dormant oil in the spring, integrated into the maintenance program, can effectively control this problem. In working with flood plains, golf courses, or recreation sites, subject to flooding, ash should be considered an effective alternative, being a

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Common Hackberry (left) tolerates heavy urban soils, grows to a height of 40 feet, and has black corky bark.
Japanese Katsuratree (immediately below) is fast growing, requires little pruning after reaching 15 feet, and makes a good specimen tree for parks, golf courses, institutional grounds and streets.
Clear yellow foliage of 'Marshall's Seedless' Green Ash in the fall (below left).
Purple foliage is the benefit of 'Autumn Purple' White Ash (below right) a seedless, male form.

Ash *from page 24*

plant that not only tolerates but thrives on wet soil conditions. This genera can add tree canopy rapidly while being very effective for fall color.

Common Hackberry *(Celtis occidentalis)* is a native throughout the midwest. It tolerates heavy, urban soil conditions well. Its upright, spreading habit, often reaching 40 feet in height, with black corky bark, can be an exciting addition to the winter landscape. The plant normally has good, wide-angle crotches, responds well to pruning, while being relatively resistant to wind and ice storm problems. In the southern part of its range (southern Michigan and Ohio) witches broom can be a problem, but further north this problem is rarely significant. Nipple gall does cause objectionable galls on the foliage but is certainly not an insect problem that will kill the plant. Hackberry is one plant that grows in most urban areas where elm thrives. It seems to tolerate urban conditions well and should be used more extensively as a park or street tree on these heavy soil sites. The fall color, although not exceptional, can certainly add variation and light yellow tinges to the landscape. Ash and hackberry are good companion plants that grow well in areas where many plants decline.

Japanese Katsuratree *(Cerediphyllum japonica)* is a medium-sized oval tree effectively reaching 50 to 70 feet in height. The heart-shaped leaves with the dual terminal make this a unique plant. The summer foliar color is blue-green with fall color ranging from scarlet to a clear brilliant yellow. This medium to large size tree is an outstanding specimen plant for use in parks, golf courses, institutional grounds, or as a street tree. It is fast growing, requiring little pruning, after reaching 15 feet in height. The largest tree in the midwest, in fact, the country, is on the Michigan State University campus. During the past 18 years, I have not noted a major insect or disease problem. Katsuratree is a plant found rarely in the trade, but one which should be grown with increasing frequency.

Katsuratree, hackberry, and ash all grow well in moist, fertile soils. They are fast growing, respond well to fertilizer, and, if pruned actively when young, form a good structure. When considering maintenance, they would rank Katsuratree, hackberry, and ash, with ash being the most maintenance intensive by virtue of insect-related problems. Most of these trees withstand urban conditions well and would not only add diversity but certainly effectively fill the niche rapidly opening by the death or decreased use of American Elm.

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