# THE MIDWEST URBAN TREE INDEX 

by Kenneth J. Schoon

The Midwest Urban Tree Index is a compilation of tree inventories compiled from twenty-seven representative Midwestern United States municipalities. It catalogs 385,646 trees, all found on public property within city boundaries, and reflects the diversity of plantings in the urban area. Providing a concise description of the Midwestern urban forest, it was designed to be a effective tool for arborists and others whose work involves Midwestern urban forestry.

## Data Collection

Of the twenty-seven Midwestern communities from which the data in this Index were collected, all are located near the center of the Midwestern United States spanning the distance from eastern lowa to eastern Indiana. All are in the U.S.D.A. Zone 5 or in the northern half of Zone 6. Nine municipalities were classified as Urban Centers, nine were Suburban Communities, and nine were Small Cities. Only one city in excess of 500,000 persons was included, because the combined tree populations of two or more of these large cities would dwarf the data from the smaller communities.

Each of these municipalities had commissioned a census of publicly owned trees. A minor problem related to the collection of data was the inconsistency from one municipality's census to the next. In some communities, tree species were classified by variety whenever possible. In others, varieties within species were not listed, and in a few cases entire genera were listed as one category (e.g. hawthorns). The problem was resolved by excluding varieties from the Index and by listing a few genera as a single group. Such genera within the seventy most common trees include hawthorn, mulberry, dogwood, magnolia, and yew. Species and variations of fruit trees are listed together by their common fruit name (except for black cherry which is listed separately from other cherries).

Urban Centers which provided inventories included in this Index were Evanston and Oak Park, Illinois; East Chicago, Fort Wayne, Gary, Hammond, Indianapolis, and Whiting, Indiana; and Davenport, lowa. Suburban Communities were Flossmoor and Glen Ellyn, Illinois; and Dyer, Griffith, Hobart, Munster, Noblesville, Portage, and Schererville, Indiana. Small Cities were Champaign and Urbana, Illinois; and Bedford, Bloomington, Greencastle, LaPorte, Terre Haute, Valparaiso, and West Lafayette, Indiana.

## Results

The Midwest Urban Tree Index shows that the composition of the Midwestern urban forest, though including 157 species of trees, is very predictable in spite of its diversity. The popularity of various tree species was shown to be very similar from community to community with a few tree species making up the bulk of the total assemblage. The twenty-five most common species of Midwest urban trees represent nearly $85 \%$ of the total. They are listed in Table 1.

Silver maple, a fast growing but weak tree, was found to be nearly three times as common as the second most common tree in the urban Midwest. This is in spite of many efforts on behalf of arborists and city park department personnel to encourage the planting of stronger and more resistant trees. The silver maple tree was found to be the most common tree in twenty of the twentyseven communities, and in five of the others it ranked number two. In suburban Griffith, Indiana, silver maples constituted $60 \%$ of all public trees. In contrast, the city of Evanston, Illinois, which has a comprehensive street tree policy, had the smallest percentage of silver maples at $2.9 \%$. According to Evanston Municipal Arborist, Dennis Ceplecha, the city maintains all street trees and replaces them as necessary. Silver Maples are not planted on any public property in Evanston.

Table 1: The twenty five most common trees on public property in the U.S. urban Midwest.

| Rank | Common name | Percent Cumulative percent |  |
| :---: | :---: | :---: | :---: |
| 1. | Silver maple | 22.65 \% | 22.65 \% |
| 2. | Sugar maple | 8.05 | 30.70 |
| 3. | Norway maple | 7.02 | 37.71 |
| 4. | Green ash | 6.71 | 44.42 |
| 5. | American elm | 4.59 | 49.01 |
| 6. | Red maple | 4.52 | 53.52 |
| 7. | White ash | 3.44 | 56.97 |
| 8. | Honeylocust | 3.25 | 60.22 |
| 9. | Siberian elm | 2.98 | 63.20 |
| 10. | Hackberry | 2.57 | 65.77 |
| 11. | Crabapple | 2.09 | 67.86 |
| 12. | Pin oak | 1.92 | 69.78 |
| 13. | American sycamore | 1.75 | 71.53 |
| 14. | Little-leaf linden | 1.68 | 73.21 |
| 15. | Northern red oak | 1.37 | 74.58 |
| 16. | Mulberry | 1.30 | 75.88 |
| 17. | Eastern cottonwood | 1.15 | 77.03 |
| 18. | American basswood | 1.12 | 78.16 |
| 19 | Eastern white pine | . 99 | 79.15 |
| 20. | Northern catalpa | . 99 | 80.14 |
| 21. | Colorado blue spruce | . 93 | 81.07 |
| 22. | Sweetgum | . 92 | 81.99 |
| 23. | Tulip tree | . 92 | 82.91 |
| 24. | Boxelder | . 92 | 83.83 |
| 25. | Pear | . 91 | 84.74 |

As late as 1965, Donald Wyman (4) described the American elm as the most popular shade tree in North America. As the Dutch Elm Disease has taken its toll, Midwestern American elms have largely been replaced by maples and ash trees. The American elm's abundance in a few Midwestern small cities today is the result of aggressive maintenance programs. In Evanston and in Oak Park, Illinois, American elms are still the most common street tree, greatly outnumbering silver maples. The village of Oak Park, which uses the slogan, "Tree City, U.S.A.," has long taken pride in its trees. In 1934 the village used WPA labor to remove undesirable trees such as poplars, catalpas, cottonwoods, and boxelders. By 1939, elms made up 75\% of Oak Park's trees, thus Dutch Elm Disease was particularly devastating as several thousand trees were lost.

Grey and Deneke (2) note that many cities today attempt to prevent major disasters such as this by promoting species diversification. In particular many cities have established a policy that no species of tree should comprise more than $15 \%$ of the total population. Oak Park, one of these cities, has two species above that $15 \%$ limit: American elm, which still comprises $29 \%$ of the total, and Norway maple at $16 \%$. According to Oak Park City Forester, Mike Stenkovich, as these trees die they are replaced by other species. It will take many years, but in time Oak Park will reach its $15 \%$ goal. It should be noted that diversification is not universally accepted. Arnold (1) believes that a diversity of tree species creates visual disorder. He prefers city blocks and boulevards with closely spaced trees, all of the same size and species. The Evanston, Illinois, tree policy follows this line of reasoning. There, each city block is assigned a specific species and only that species of tree is planted there.

In twenty-five of the twenty-seven communities included in this survey, at least one species of tree does comprise more than $15 \%$ of the total. For twenty of these communities, that species was the silver maple. Other species which exceeded 15\% were: sugar maple (in three communities), American elm and green ash (each in two communities), and Norway maple, Siberian elm, and callery pear (each in one community). Champaign and Urbana, Illinois, are the only two cities included in this survey in which no one species exceeds fifteen percent of the total assemblage.

## Distribution by Type of City

Reflecting the fact that Midwestern communities differ in size, location, and local environment, the Index classifies communities into three categories: Urban Centers, Suburban Communities, and Small Cities. Urban Centers are manufacturing cities (or combinations of contiguous cities) which serve an area larger than one county and, without including adjacent suburban areas, have a population greater than 150,000. All Urban Centers in this Index have suffered population declines within the last few decades. Although a few have recently reversed their downward population slides, none of them is near its 1970 population
figure. Suburban Communities are adjacent to the Urban Centers. All Suburban Communities listed in this Index have more than tripled their population since 1940 (many have a population today in excess of ten times the 1940 population), and are either still growing or have just recently reached a population plateau. Small Cities, often county seats, serve as economic centers for smaller areas. All of the Small Cities included in this index currently have populations of less than sixty-five thousand persons. While most of them have grown in population since 1940, none has done so at the phenomenal rate which characterizes many newer suburbs. Table 2 lists the twenty-five most common trees in each type of urban area. Table 3, near the end of this article, lists the number and percent of each of the 157 species found. The latter table also classifies trees by the type of urban area in which it was found.

One result of the declining population of many Midwestern urban centers has been that trees in these cities are generally older and larger than in newer suburban areas. The tree population also partially reflects the planting customs of earlier generations and the difficulties associated with street salt and air pollution. Urban Centers contain large numbers of trees seldom planted today. Included in this group are: Siberian elm, American sycamore, mulberry, cottonwood, catalpa, boxelder, and the tree of heaven. Many of these trees cause considerable maintenance problems as they are disease prone or are structurally weak. Each urban center municipality listed silver maple as its most common tree.

Newer suburban communities have the luxury of using the knowledge gained about urban forests before planting. Some have done so, while others consider street trees to be the concern solely of individual property owners. Munster, Indiana, is fairly typical in its policy of leaving the planting of street trees to developers or property owners, but encouraging the planting of specific species. In a more unusual move, that townhas recently adopted a practice of refunding to the owner $50 \%$ (with a $\$ 50.00$ maximum) toward the cost of new trees planted in front of homes, but on town property, as long as the trees are selected from a list of recommended species.

Although crabapple trees are now found throughout all Midwestern regions, suburban communities have the largest concentration of the other smaller ornamental fruit trees. The ornamental callery pear, widely planted in suburban areas within the last 10 years, is quickly becoming part of the suburban streetscape. In 1991, Munster completed the restructuring of its main northsouth avenue, which serves as the primary entrance to the town, by lining the street with 78 'Bradford' callery pears. Ornamental cherries and plums are also quite popular in suburban communities. If classified as one group (both are in the genus, Prunus), these fruit trees would rank number 20 in the suburban listing.

Harris (3) notes that since 1940, there has been much interest in planting smaller trees such as crabapples and other ornamental fruit trees. Smaller trees appeal to business owners who don't want trees to block sight lines and to utility companies which dislike trees growing too close to elevated power and telephone lines. Harris notes, however, that many arborists believe that the smaller trees have been too heavily planted in public and private landscapes where larger shade trees would do better.

Suburban communities do have their share of problem trees. On average, they have the highest percentage of silver maples ( $32.8 \%$ ). Indeed, many neighborhoods within suburban communities have nearly a $100 \%$ silver maple street tree population. Other problem trees quite common in suburban communities include the Siberian elm, boxelder, cottonwood, American sycamore, and black locust.

Midwestern small cities share some of the same characteristics as both urban centers and their suburban neighbors. Being generally older than the suburbs, they have many large trees planted generations ago, but they also have many neighborhoods of newer homes and trees.

The four most common tree species in the Midwestern small cities are all maples. Together these four species make up more than $57 \%$ of the small cities' urban forest. And although the silver maple was found to be the most common tree, it does not have the overwhelming dominance found in suburban communities. Sugar and red maples are much more common in the small cities than in

Table 2. A comparison of the most common urban trees by type of city.

| Rank | Urban centers | Suburban centers | Small cities |
| :---: | :---: | :---: | :---: |
| 1. | silver maple | silver maple | silver maple |
| 2. | Norway maple | Norway maple | sugar maple |
| 3. | green ash | green ash | red maple |
| 4. | American elm | honeylocust | Norway maple |
| 5. | sugar maple | sugar maple | green ash |
| 6. | white ash | American elm | white ash |
| 7. | hackberry | white oak | American sycamore |
| 8. | Siberian elm | Siberian elm | Siberian elm |
| 9. | honeylocust | red maple | honeylocust |
| 10. | red maple | pear | pin oak |
| 11. | crabapple | crabapple | littleleaf linden |
| 12. | pin oak | northern red oak | tulip tree |
| 13. | littleleaf linden | boxelder | sweetgum |
| 14. | American sycamore | cottonwood | northern red oak |
| 15. | mulberry | white ash | crabapple |
| 16. | cottonwood | pin oak | hackberry |
| 17. | white pine | basswood | redbud |
| 18. | basswood | American sycamore | American elm |
| 19. | catalpa | littleleaf linden | catalpa |
| 20. | blue spruce | black locust | pear |
| 21. | Norway spruce | hawthorn | dogwood |
| 22. | northern red oak | black cherry | basswood |
| 23. | black cherry | mulberry | tree of heaven |
| 24. | boxelder tree of heaven | blue spruce black walnut | boxelder black walnut |

either the urban or suburban areas. Small towns also generally contain relatively larger numbers of sweetgums and tulip trees. Generally missing from many small city streets is the American elm.

The epitome of the maple-loving Midwestern small city, is LaPorte, Indiana, located in the northern part of that state. LaPorte is known as the "Maple City" and uses a figure of a maple tree in its City Seal. According to Mrs. Liz Ridneour, president of the LaPorte Tree Commission, the city enjoyed mass plantings of Maples for over a century. Seventy-eight percent of LaPorte's street trees are maples, most of them being sugar maples.

## Latitude Differences

Latitude makes a few differences in tree populations in the communities surveyed. In general, the southern communities (39-40 degrees
north latitude), such as Indianapolis, were less dependent upon a few species than were the northern cities ( $41-42$ degrees north latitude) including the communities near Chicago. Of the most common trees, Norway maple, green ash, American elm, and honeylocust were less numerous in the southern communities than in the northern ones. However, white ash, red maple, and hackberries were more popular in the south.

Not surprisingly, those trees listed as less tolerant in northern areas were more common in the southerncities. These trees included apricot, dawn redwood, flowering ash, hardy rubber tree, Japanese maple, magnolias, mimosa, Osage orange, pawpaw, royal paulownia, European smoke tree, sweetgum, and zelkova. Of these trees, only sweetgum ranked in the top fifty trees, the others were much less common, even in the south.

Table 3: Number of midwestern urban trees classified by type of urban area.

| Scientific name | Common name | Grand totals |  |  |  | Urban Center |  | Suburban |  | Small City |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Rank | No | \% | Cum.\% | No. | \% | No. | \% | No. | \% |
| Acer saccharinum | Silver maple |  | 87349 | 22.65 | 22.65 | 48012 | 19.55 | 18238 | 32.83 | 21099 | 24.98 |
| Acer saccharum | Sugar maple |  | 1039 | 8.05 | 30.70 | 14193 | 5.78 | 2391 | 4.30 | 14455 | 17.11 |
| Acer platanoides | Norway maple |  | 27056 | 7.02 | 37.71 | 19327 | 7.87 | 4946 | 8.90 | 2783 | 3.29 |
| Fraxinus pennsylvanica | Green ash |  | 5869 | 6.71 | 44.42 | 19080 | 7.77 | 4115 | 7.41 | 2674 | 3.17 |
| Ulmus americana | American elm |  | 7689 | 4.59 | 49.01 | 15026 | 6.12 | 1814 | 3.27 | 849 | 1.01 |
| Acer rubrum | Red maple |  | 7413 | 4.52 | 53.52 | 5849 | 2.38 | 1429 | 2.57 | 10135 | 12.00 |
| Fraxinus americana | White ash |  | 3280 | 3.44 | 56.97 | 10519 | 4.28 | 730 | 1.31 | 2032 | 2.41 |
| Gleditsia triacanthos | Honeylocust |  | 2544 | 3.25 | 60.22 | 7830 | 3.19 | 2880 | 5.18 | 183 | 2.17 |
| Ulmus pumila | Siberian elm |  | 1476 | 2.98 | 63.20 | 8167 | 3.32 | 1466 | 2.64 | 1843 | 2.18 |
| Celtis occidentalis | Hackberry | 10 | 9918 | 2.57 | 65.77 | 8609 | 3.50 | 201 | 0.36 | 1108 | 1.31 |
| Malus (species) | Crabapple | 11 | 8071 | 2.09 | 67.86 | 5319 | 2.17 | 1345 | 2.42 | 1407 | 1.67 |
| Quercus palustris | Pin oak | 12 | 7394 | 1.92 | 69.78 | 4922 | 2.00 | 650 | 1.17 | 1822 | 2.16 |
| Platanus occidentalis | Am. sycamore | 13 | 6752 | 1.75 | 71.53 | 4215 | 1.72 | 528 | 0.95 | 2009 | 2.38 |
| Tilia cordata | Littleleaf linden | 14 | 6491 | 1.68 | 73.21 | 4340 | 1.77 | 450 | 0.81 | 1701 | 2.01 |
| Quercus rubra | Northern red oak | 15 | 5276 | 1.37 | 74.58 | 2655 | 1.08 | 1195 | 2.15 | 1426 | 1.69 |
| Morus (species) | Mulberry | 16 | 5005 | 1.30 | 75.88 | 4102 | 1.67 | 369 | 0.66 | 534 | 0.63 |
| Populus deltoides | Eastern cottonwood | 17 | 4448 | 1.15 | 77.03 | 3445 | 1.40 | 733 | 1.32 | 270 | 0.32 |
| Tilia americana | American basswood | 18 | 4337 | 1.12 | 78.16 | 3089 | 1.26 | 644 | 1.16 | 60 | 0.71 |
| Pinus strobus | Eastern white pine | 19 | 3835 | 0.99 | 79.15 | 3259 | 1.33 | 80 | 0.14 | 496 | 0.59 |
| Catalpa speciosa | Northern catalpa | 20 | 3813 | 0.99 | 80.14 | 2849 | 1.16 | 184 | 0.33 | 780 | 0.92 |
| Picea pungens | Blue spruce | 21 | 3584 | 0.93 | 81.07 | 2768 | 1.13 | 352 | 0.63 | 465 | 0.55 |
| Liquidambar styraciflua | Sweetgum | 22 | 3547 | 0.92 | 81.99 | 1880 | 0.77 | 166 | 0.30 | 1501 | 1.78 |
| Liriodendron tulipifera | Tulip tree | 23 | 3546 | 0.92 | 82.91 | 1802 | 0.73 | 192 | 0.35 | 1552 | 1.84 |
| Acer negundo | Boxelder maple | 24 | 3536 | 0.92 | 83.83 | 2196 | 0.89 | 763 | 1.37 | 577 | 0.68 |
| Pyrus calleryana | Callery pear | 25 | 3514 | 0.91 | 84.74 | 1377 | 0.56 | 1372 | 2.47 | 765 | 0.91 |
| Prunus serotina | Black cherry | 26 | 3301 | 0.86 | 85.59 | 2543 | 1.04 | 377 | 0.68 | 381 | 0.45 |
| Cercis canadensis | Redbud | 27 | 3188 | 0.83 | 86.42 | 2019 | 0.82 | 131 | 0.24 | 1038 | 1.23 |
| Quercus alba | White oak | 28 | 3030 | 0.79 | 87.20 | 1222 | 0.50 | 1554 | 2.80 | 254 | 0.30 |
| Picea abies | Norway spruce | 29 | 3016 | 0.78 | 87.99 | 2697 | 1.10 | 49 | 0.09 | 270 | 0.32 |
| Ailanthus altissima | Tree of heaven | 30 | 2881 | 0.75 | 88.73 | 2184 | 0.89 | 102 | 0.18 | 595 | 0.70 |
| Juglans nigra | Black walnut | 31 | 2747 | 0.71 | 89.45 | 1891 | 0.77 | 340 | 0.61 | 516 | 0.61 |
| Robinia pseudoacacia | Black locust | 32 | 2462 | 0.64 | 90.08 | 1744 | 0.71 | 416 | 0.75 | 302 | 0.36 |
| Crataegus (species) | Hawthorn | 33 | 2299 | 0.60 | 90.68 | 1749 | 0.71 | 385 | 0.69 | 165 | 0.20 |
| Juniperus virginiana | Eastern redcedar | 34 | 1903 | 0.49 | 91.17 | 1415 | 0.58 | 169 | 0.30 | 319 | 0.38 |
| Pinus sylvestris | Scotch pine | 35 | 1867 | 0.48 | 91.66 | 1571 | 0.64 | 161 | 0.29 | 135 | 0.16 |
| Prunus (species) | Plum | 36 | 1858 | 0.48 | 92.14 | 1530 | 0.62 | 173 | 0.31 | 155 | 0.18 |
| Ulmus rubra | Slippery/Red elm | 37 | 1735 | 0.45 | 92.59 | 1470 | 0.60 | 169 | 0.30 | 96 | 0.11 |
| Ginkgo biloba | Ginkgo | 38 | 1713 | 0.44 | 93.03 | 1256 | 0.51 | 185 | 0.33 | 272 | 0.32 |
| Quercus velutina | Black oak | 39 | 1598 | 0.41 | 93.45 | 1335 | 0.54 | 205 | 0.37 | 58 | 0.07 |
| Cornus (species) | Dogwood | 40 | 1416 | 0.37 | 93.82 | 712 | 0.29 | 85 | 0.15 | 619 | 0.73 |
| Quercus macrocarpa | Bur oak | 41 | 1261 | 0.33 | 94.14 | 797 | 0.32 | 316 | 0.57 | 148 | 0.18 |
| Carya ovata | Shagbark hickory | 42 | 1150 | 0.30 | 94.44 | 1016 | 0.41 | 100 | 0.18 | 34 | 0.04 |
| Populus nigra 'Italica' | Lombardy poplar | 43 | 897 | 0.23 | 94.67 | 763 | 0.31 | 33 | 0.06 | 101 | 0.12 |
| Thuja occidentalis | Arborvitae/Cedar | 44 | 879 | 0.23 | 94.90 | 733 | 0.30 | 54 | 0.10 | 92 | 0.11 |
| Pinus resinosa | Red pine | 45 | 858 | 0.22 | 95.12 | 618 | 0.25 | 69 | 0.12 | 171 | 0.20 |
| Picea glauca | White spruce | 46 | 765 | 0.20 | 95.32 | 504 | 0.21 | 102 | 0.18 | 159 | 0.19 |
| Platanus x acerfolia | London plane tree | 47 | 763 | 0.20 | 95.52 | 507 | 0.21 | 46 | 0.08 | 210 | 0.25 |
| Prunus (species) | Cherry (ex. black) | 48 | 760 | 0.20 | 95.72 | 349 | 0.14 | 256 | 0.46 | 155 | 0.18 |
| Sorbus aucuparia | Mountain ash | 49 | 748 | 0.19 | 95.91 | 447 | 0.18 | 258 | 0.46 | 43 | 0.05 |
| Pinus nigra | Austrian black pine | 50 | 692 | 0.18 | 96.09 | 539 | 0.22 | 96 | 0.17 | 57 | 0.07 |
| Betula nigra | River birch | 51 | 619 | 0.16 | 96.25 | 479 | 0.20 | 52 | 0.09 | 88 | 0.10 |
| Gymnocladus dioicus | Ky coffeetree | 52 | 616 | 0.16 | 96.41 | 522 | 0.21 | 13 | 0.02 | 81 | 0.10 |
| Acer nigrum | Black maple | 53 | 544 | 0.14 | 96.55 | 534 | 0.22 | 3 | 0.01 | 7 | 0.01 |


| Alnus glutinosa | European alder | 54 | 494 | 0.13 | 96.68 | 488 | 0.20 | 6 | 0.01 | 0 | *** |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Quercus robur | English oak | 55 | 474 | 0.12 | 96.80 | 207 | 0.08 | 7 | 0.01 | 260 | 0.31 |
| Magnolia (species) | Magnolia | 56 | 465 | 0.12 | 96.92 | 387 | 0.16 | 28 | 0.05 | 50 | 0.06 |
| Aesculus hippocastani | Horsechestnut | 57 | 450 | 0.12 | 97.04 | 352 | 0.14 | 88 | 0.16 | 10 | 0.01 |
| Betula pendula | White birch | 58 | 447 | 0.12 | 97.16 | 255 | 0.10 | 54 | 0.10 | 138 | 0.16 |
| Aesculus glabra | Ohio buckeye | 59 | 418 | 0.11 | 97.26 | 363 | 0.15 | 20 | 0.04 | 35 | 0.04 |
| Salix alba 'Tristis' | Weeping willow | 60 | 410 | 0.11 | 97.37 | 267 | 0.11 | 102 | 0.18 | 40 | 0.05 |
| Elaeagnus angustifolia | Russian olive | 61 | 368 | 0.10 | 97.47 | 252 | 0.10 | 102 | 0.18 | 14 | 0.02 |
| Tsuga canadensis | Eastern hemlock | 62 | 348 | 0.09 | 97.56 | 285 | 0.12 | 7 | 0.01 | 56 | 0.07 |
| Taxus (species) | Yew | 63 | 348 | 0.09 | 97.65 | 147 | 0.06 | 185 | 0.33 | 16 | 0.02 |
| Populus alba | White poplar | 64 | 340 | 0.09 | 97.74 | 258 | 0.11 | 63 | 0.11 | 19 | 0.02 |
| Salix matsudana | Corkscrew willow | 65 | 320 | 0.08 | 97.82 | 80 | 0.03 | 218 | 0.39 | 22 | 0.03 |
| Salix nigra | Black willow | 66 | 311 | 0.08 | 97.90 | 70 | 0.03 | 215 | 0.39 | 25 | 0.03 |
| Taxodium distichum | Bald cypress | 67 | 319 | 0.08 | 97.98 | 123 | 0.05 | 11 | 0.02 | 185 | 0.22 |
| Juniperus (species) | Juniper | 68 | 314 | 0.08 | 98.06 | 68 | 0.03 | 187 | 0.34 | 59 | 0.07 |
| Quercus imbricaria | Shingle oak | 69 | 310 | 0.08 | 98.14 | 57 | 0.02 | 14 | 0.03 | 239 | 0.28 |
| Sassafras albidum | Sassafras | 70 | 308 | 0.08 | 98.22 | 65 | 0.03 | 108 | 0.19 | 135 | 0.16 |
| Quercus bicolor | Swamp white oak | 71 | 298 | 0.08 | 98.30 | 187 | 0.08 | 5 | 0.01 | 106 | 0.13 |
| Carpinus (species) | Hornbeam | 72 | 290 | 0.08 | 98.38 | 235 | 0.10 | 10 | 0.02 | 45 | 0.05 |
| Phellodendron amurens | se Amur cork tree | 73 | 273 | 0.07 | 98.45 | 206 | 0.08 | 4 | 0.01 | 63 | 0.07 |
| Sorbus americana | Mountain ash | 74 | 243 | 0.06 | 98.51 | 16 | 0.01 | 191 | 0.34 | 36 | 0.04 |
| Rhus typhina | Staghorn sumac | 75 | 236 | 0.06 | 98.57 | 83 | 0.03 | 0 | ** | 153 | 0.18 |
| Abies fraseri | Fraser Fir | 76 | 223 | 0.06 | 98.63 | 223 | 0.09 | 0 | *** | 0 | ** |
| Fagus grandifolia | American beech | 77 | 221 | 0.06 | 98.69 | 199 | 0.08 | 0 | *** | 22 | 0.03 |
| Malus (domestica) | Apple | 78 | 206 | 0.05 | 98.74 | 40 | 0.02 | 142 | 0.26 | 24 | 0.03 |
| Betula papyrifera | Paper birch | 79 | 194 | 0.05 | 98.79 | 26 | 0.01 | 63 | 0.11 | 105 | 0.12 |
| Acer ginnala | Amur maple | 80 | 181 | 0.05 | 98.84 | 97 | 0.04 | 36 | 0.06 | 48 | 0.06 |
| Ulmus parvifolia | Chinese elm | 81 | 174 | 0.05 | 98.88 | 22 | 0.01 | 34 | 0.06 | 118 | 0.14 |
| Quercus muehlenbergii | Chinkapin oak | 82 | 174 | 0.05 | 98.93 | 156 | 0.06 | 1 | *** | 17 | 0.02 |
| Pinus banksiana | Jack pine | 83 | 171 | 0.04 | 98.97 | 111 | 0.05 | 37 | 0.07 | 23 | 0.03 |
| Fraxinus quadrangulata | Blue ash | 84 | 160 | 0.04 | 99.01 | 110 | 0.04 | 0 | *** | 50 | 0.06 |
| Amelanchier laevis | Serviceberry | 85 | 158 | 0.04 | 99.05 | 55 | 0.02 | 28 | 0.05 | 75 | 0.09 |
| Maclura pomifera | Osage orange | 86 | 152 | 0.04 | 99.09 | 108 | 0.04 | 15 | 0.03 | 29 | 0.03 |
| Pseudotsuga menziesii | Douglas fir | 87 | 150 | 0.04 | 99.13 | 115 | 0.05 | 10 | 0.02 | 25 | 0.03 |
| Ostrya virginiana | Ironwoad | 88 | 144 | 0.04 | 99.17 | 72 | 0.03 | 52 | 0.09 | 20 | 0.02 |
| Hibiscus syriacus | Rose-of-Sharon | 89 | 139 | 0.04 | 99.20 | 42 | 0.02 | 79 | 0.14 | 18 | 0.02 |
| Tilía tomentosa | Silver linden | 90 | 137 | 0.04 | 99.24 | 10 | *** | 0 | *** | 127 | 0.15 |
| Fraxinus excelsior | European ash | 91 | 135 | 0.04 | 99.28 | 103 | 0.04 | 22 | 0.04 | 10 | 0.01 |
| Cercidiphyllum japonicum | m Katsura tree | 92 | 129 | 0.03 | 99.31 | 127 | 0.05 | 0 | *** | 2 | *** |
| Koelreuteria paniculata | Golden raintree | 93 | 127 | 0.03 | 99.34 | 79 | 0.03 | 14 | 0.03 | 34 | 0.04 |
| Acer palmatum | Japanese maple | 94 | 117 | 0.03 | 99.37 | 101 | 0.04 | 2 | *** | 14 | 0.02 |
| Juglans cinerea | Butternut | 95 | 110 | 0.03 | 99.40 | 92 | 0.04 | 6 | 0.01 | 12 | 0.01 |
| Salix alba | White willow | 96 | 109 | 0.03 | 99.43 | 103 | 0.04 | 3 | 0.01 | 3 | *** |
| Nyssa sylvatica | Black gum/Tupelo | 97 | 109 | 0.03 | 99.46 | 11 | *** | 13 | 0.02 | 85 | 0.10 |
| Carya glabra | Pignut | 98 | 109 | 0.03 | 99.49 | 34 | 0.01 | 73 | 0.13 | 2 | *** |
| Fraxinus ornus | Flowering ash | 99 | 107 | 0.03 | 99.51 | 107 | 0.04 | 0 | *** | 0 | *** |
| llex opaca | Holly | 100 | 92 | 0.02 | 99.54 | 38 | 0.02 | 1 | *** | 53 | 0.06 |
| Acer campestre | Hedge maple | 101 | 92 | 0.02 | 99.56 | 67 | 0.03 | 0 | *** | 25 | 0.03 |
| Diospyros virginiana | Persimmon | 102 | 91 | 0.02 | 99.58 | 57 | 0.02 | 2 | *** | 32 | 0.04 |
| Fraxinus nigra | Black ash | 103 | 86 | 0.02 | 99.61 | 43 | 0.02 | 39 | 0.07 | 4 | *** |
| Albizia julibrissin | Mimosa | 104 | 86 | 0.02 | 99.63 | 68 | 0.03 | 0 | *** | 18 | 0.02 |
| Castanea (species) | Chestnut | 105 | 70 | 0.02 | 99.65 | 41 | 0.02 | 4 | 0.01 | 25 | 0.03 |
| Aesculus octandra | Yellow buckeye | 106 | 69 | 0.02 | 99.67 | 69 | 0.03 | 0 | *** | 0 | *** |
| Quercus coccinea | Scarlet oak | 107 | 69 | 0.02 | 99.68 | 51 | 0.02 | 0 | *** | 18 | 0.02 |
| Quercus prinus | Chestnut oak | 108 | 65 | 0.02 | 99.70 | 62 | 0.03 | 0 | *** | 3 | *** |
| Populus tremuloides | Quaking aspen | 109 | 63 | 0.02 | 99.72 | 21 | 0.01 | 38 | 0.07 | 4 | *** |
| Corylus (species) | Filbert | 110 | 62 | 0.02 | 99.73 | 49 | 0.02 | 0 | - | 13 | 0.02 |
| Zelkova serrata | Zelkova | 111 | 57 | 0.01 | 99.75 | 20 | 0.01 | 0 | *** | 37 | 0.04 |
| Betula lutea | Yellow birch | 112 | 54 | 0.01 | 99.76 | 12 | *** | 0 | *** | 42 | 0.05 |
| Abies balsamea | Balsam fir | 113 | 53 | 0.01 | 99.77 | 28 | 0.01 | 0 | *** | 25 | 0.03 |


| Betula populifolia | Gray birch | 114 | 50 | 0.01 | 99.79 | 11 | *** | 2 | *** | 37 | 0.04 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sophora japonica | Jap. scholar tree | 115 | 50 | 0.01 | 99.80 | 19 | 0.01 | 3 | 0.01 | 28 | 0.03 |
| Cotinus coggygria | Smoke tree | 116 | 48 | 0.01 | 99.81 | 47 | 0.02 | 1 | *** | 0 | ** |
| Abies concolor | White fir | 117 | 48 | 0.01 | 99.83 | 27 | 0.01 | 16 | 0.03 | 5 | 0.01 |
| Cladrastis kentukea | Yellowwood | 118 | 47 | 0.01 | 99.84 | 1 | *** | 2 | *** | 44 | 0.05 |
| Viburnum (species) | Viburnum | 119 | 46 | 0.01 | 99.85 | 19 | 0.01 | 12 | 0.02 | 15 | 0.02 |
| Pinus virginiana | Virginia pine | 120 | 43 | 0.01 | 99.86 | 39 | 0.02 | 0 | *** | 4 | ** |
| Quercus shumardii | Shumard oak | 121 | 42 | 0.01 | 99.87 | 0 | *** | 0 | *** | 42 | 0.05 |
| Euonymus alatus | Winged spindletree | 122 | 39 | 0.01 | 99.88 | 39 | 0.02 | 0 | *** | 0 | *** |
| Larix (species) | Larch/Tamarack | 123 | 38 | 0.01 | 99.89 | 24 | 0.01 | 6 | 0.01 | 8 | 0.01 |
| Prunus persica | Peach | 124 | 38 | 0.01 | 99.90 | 19 | 0.01 | 4 | 0.01 | 15 | 0.02 |
| Populus balsamifera | Balsam poplar | 125 | 34 | 0.01 | 99.91 | 0 | *** | 4 | 0.01 | 30 | 0.04 |
| Fagus sylvatica | European beech | 126 | 34 | 0.01 | 99.92 | 12 | *** | 0 | *** | 22 | 0.03 |
| Rhus glabra | Smooth sumac | 127 | 30 | 0.01 | 99.93 | 16 | 0.01 | 12 | 0.02 | 2 | *** |
| Cedrus (species) | Cedar | 128 | 30 | 0.01 | 99.93 | 30 | 0.01 | 0 | *** | 0 | *** |
| Paulownia tomentosa | Royal paulownia | 129 | 23 | 0.01 | 99.94 | 14 | 0.01 | 0 | *** | 9 | 0.01 |
| Metasequoia | Dawn redwood | 130 | 23 | 0.01 | 99.95 | 5 | *** | 1 | *** | 17 | 0.02 |
| Picea mariana | Black spruce | 131 | 20 | 0.01 | 99.95 | 20 | 0.01 | 0 | *** | 0 | ** |
| Carya cordiformis | Bitternut hickory | 132 | 17 | *** | 99.96 | 5 | *** | 1 | *** | 11 | 0.01 |
| Juglans regia | English wainut | 133 | 16 | *** | 99.96 | 16 | 0.01 | 0 | *** | 0 | ** |
| Eucommia ulmoides | Hardy rubber tree | 134 | 16 | *** | 99.96 | 0 | *** | 0 | *** | 16 | 0.02 |
| Tilia x europaea | European linden | 135 | 14 | ** | 99.97 | 14 | 0.01 | 0 | *** | 0 | ** |
| Acer pseudoplatanus | Sycamore maple | 136 | 14 | ** | 99.97 | 13 | 0.01 | 0 | *** | 1 | *** |
| Euonymus (species) | Euonymus | 137 | 11 | *** | 99.97 | 3 | *** | 7 | 0.01 | 1 | *** |
| Carya illinoensis | Pecan | 138 | 10 | ** | 99.98 | 2 | *** | 1 | *** | 7 | 0.01 |
| Elaeagnus umbellata | Autumn Olive | 139 | 10 | *** | 99.98 | 5 | *** | 1 | *** | 4 | ** |
| Picea omorika | Siberian spruce | 140 | 10 | *** | 99.98 | 0 | *** | 0 | *** | 10 | 0.01 |
| Oxydendrum arboreum | Sourwood | 141 | 9 | ** | 99.98 | 9 | *** | 0 | *** | 0 | ** |
| Robinia viscosa | Clammy locust | 142 | 8 | *** | 99.99 | 8 | *** | 0 | *** | 0 | *** |
| Asimina triloba | Pawpaw | 143 | 7 | *** | 99.99 | 5 | *** | 0 | *** | 2 | *** |
| Hamamelis (species) | Witch-hazel | 144 | 7 | *** | 99.99 | 0 | *** | 0 | *** | 7 | 0.01 |
| Prunus (species) | Apricot | 145 | 5 | *** | 99.99 | 0 | *** | 0 | ** | 5 | 0.01 |
| Robinia hispida | Bristly locust | 146 | 5 | ** | 99.99 | 0 | *** | 5 | 0.01 | 0 | ** |
| Cornus mas | Corn. dogwood | 147 | 4 | *** | 99.99 | 0 | *** | 0 | *** | 4 | *** |
| Betula (species) | Cutleaf birch | 148 | 4 | *** | >99.99 | 1 | *** | 1 | *** | 2 | *** |
| Pyracantha | Firethorn | 149 | 4 | *** | >99.99 | 0 | *** | 0 | *** | 4 | ** |
| Robinia 'Idaho' | Idaho locust | 150 | 3 | *** | >99.99 | 3 | *** | 0 | *** | 0 | *** |
| Salix amygdaloides | Peachleaf willow | 151 | 3 | *** | >99.99 | 3 | *** | 0 | *** | 0 | *** |
| Pinus densiflora | Jap. red pine | 152 | 2 | *** | >99.99 | 0 | *** | 0 | *** | 2 | *** |
| Acer spicatum | Mountain maple | 153 | 2 | *** | >99.99 | 0 | *** | 0 | *** | 2 | *** |
| Cotoneaster (species) | Cotoneaster | 154 | 1 | *** | >99.99 | 1 | *** | 0 | *** | 0 | *** |
| Prunus triloba | Flowering almond | 155 | 1 | *** | >99.99 | 1 | *** | 0 | *** | 0 | *** |
| Chionanthus virginicus | Fringetree | 156 | 1 | *** | >99.99 | 0 | *** | 0 | *** | 1 | *** |
| Acer pensylvanicum | Striped maple | 157 | 1 | *** | 100.00 | 0 | *** | 0 | *** | 1 | *** |
| Totals |  |  | 364, |  |  |  | ,627 | 55,5 |  | 62,8 |  |

Table 3 lists the total number and percent of all 157 tree species found. The table also lists the totals for Urban Centers, Suburban Communities and Small Cities.

## Summary

The Midwest Urban Tree Index has shown that the Midwestern urban forest is composed of a large variety of tree species and yet is remarkably predictable in its diversity. Of 157 species of trees listed in the index, silver maple, sugar maple, Norway maple, green ash and American elm were found to be the most common.

The Index was drawn from twenty-seven individual municipal inventories listing 385,646 trees, all found on public property within municipal boundaries. The Index classifies municipalities as: Urban Centers, Suburban Communities or Small Cities. Silver maple was found to be the most common tree in each category. Norway maple is the second most common tree in urban
centers and suburban communities while sugar maple is second most common in small cities. Latitude makes a difference in tree populations in that Southern communities were found to be less dependent upon a few species than northern cities. They also have a larger proportion of those trees less tolerant in northern areas.

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