

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 an 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 Iowa 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, Iowa. 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 twenty-seven 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 Cepelcha, 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 town has 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 north-south 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	blue spruce	boxelder
25.	tree of heaven	black walnut	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 southern cities. 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.	%	
<i>Acer saccharinum</i>	Silver maple	1	87349	22.65	22.65	48012	19.55	18238	32.83	21099	24.98
<i>Acer saccharum</i>	Sugar maple	2	31039	8.05	30.70	14193	5.78	2391	4.30	14455	17.11
<i>Acer platanoides</i>	Norway maple	3	27056	7.02	37.71	19327	7.87	4946	8.90	2783	3.29
<i>Fraxinus pennsylvanica</i>	Green ash	4	25869	6.71	44.42	19080	7.77	4115	7.41	2674	3.17
<i>Ulmus americana</i>	American elm	5	17689	4.59	49.01	15026	6.12	1814	3.27	849	1.01
<i>Acer rubrum</i>	Red maple	6	17413	4.52	53.52	5849	2.38	1429	2.57	10135	12.00
<i>Fraxinus americana</i>	White ash	7	13280	3.44	56.97	10519	4.28	730	1.31	2032	2.41
<i>Gleditsia triacanthos</i>	Honeylocust	8	12544	3.25	60.22	7830	3.19	2880	5.18	1834	2.17
<i>Ulmus pumila</i>	Siberian elm	9	11476	2.98	63.20	8167	3.32	1466	2.64	1843	2.18
<i>Celtis occidentalis</i>	Hackberry	10	9918	2.57	65.77	8609	3.50	201	0.36	1108	1.31
<i>Malus (species)</i>	Crabapple	11	8071	2.09	67.86	5319	2.17	1345	2.42	1407	1.67
<i>Quercus palustris</i>	Pin oak	12	7394	1.92	69.78	4922	2.00	650	1.17	1822	2.16
<i>Platanus occidentalis</i>	Am. sycamore	13	6752	1.75	71.53	4215	1.72	528	0.95	2009	2.38
<i>Tilia cordata</i>	Littleleaf linden	14	6491	1.68	73.21	4340	1.77	450	0.81	1701	2.01
<i>Quercus rubra</i>	Northern red oak	15	5276	1.37	74.58	2655	1.08	1195	2.15	1426	1.69
<i>Morus (species)</i>	Mulberry	16	5005	1.30	75.88	4102	1.67	369	0.66	534	0.63
<i>Populus deltoides</i>	Eastern cottonwood	17	4448	1.15	77.03	3445	1.40	733	1.32	270	0.32
<i>Tilia americana</i>	American basswood	18	4337	1.12	78.16	3089	1.26	644	1.16	604	0.71
<i>Pinus strobus</i>	Eastern white pine	19	3835	0.99	79.15	3259	1.33	80	0.14	496	0.59
<i>Catalpa speciosa</i>	Northern catalpa	20	3813	0.99	80.14	2849	1.16	184	0.33	780	0.92
<i>Picea pungens</i>	Blue spruce	21	3584	0.93	81.07	2768	1.13	352	0.63	465	0.55
<i>Liquidambar styraciflua</i>	Sweetgum	22	3547	0.92	81.99	1880	0.77	166	0.30	1501	1.78
<i>Liriodendron tulipifera</i>	Tulip tree	23	3546	0.92	82.91	1802	0.73	192	0.35	1552	1.84
<i>Acer negundo</i>	Boxelder maple	24	3536	0.92	83.83	2196	0.89	763	1.37	577	0.68
<i>Pyrus calleryana</i>	Callery pear	25	3514	0.91	84.74	1377	0.56	1372	2.47	765	0.91
<i>Prunus serotina</i>	Black cherry	26	3301	0.86	85.59	2543	1.04	377	0.68	381	0.45
<i>Cercis canadensis</i>	Redbud	27	3188	0.83	86.42	2019	0.82	131	0.24	1038	1.23
<i>Quercus alba</i>	White oak	28	3030	0.79	87.20	1222	0.50	1554	2.80	254	0.30
<i>Picea abies</i>	Norway spruce	29	3016	0.78	87.99	2697	1.10	49	0.09	270	0.32
<i>Ailanthus altissima</i>	Tree of heaven	30	2881	0.75	88.73	2184	0.89	102	0.18	595	0.70
<i>Juglans nigra</i>	Black walnut	31	2747	0.71	89.45	1891	0.77	340	0.61	516	0.61
<i>Robinia pseudoacacia</i>	Black locust	32	2462	0.64	90.08	1744	0.71	416	0.75	302	0.36
<i>Crataegus (species)</i>	Hawthorn	33	2299	0.60	90.68	1749	0.71	385	0.69	165	0.20
<i>Juniperus virginiana</i>	Eastern redcedar	34	1903	0.49	91.17	1415	0.58	169	0.30	319	0.38
<i>Pinus sylvestris</i>	Scotch pine	35	1867	0.48	91.66	1571	0.64	161	0.29	135	0.16
<i>Prunus (species)</i>	Plum	36	1858	0.48	92.14	1530	0.62	173	0.31	155	0.18
<i>Ulmus rubra</i>	Slippery/Red elm	37	1735	0.45	92.59	1470	0.60	169	0.30	96	0.11
<i>Ginkgo biloba</i>	Ginkgo	38	1713	0.44	93.03	1256	0.51	185	0.33	272	0.32
<i>Quercus velutina</i>	Black oak	39	1598	0.41	93.45	1335	0.54	205	0.37	58	0.07
<i>Cornus (species)</i>	Dogwood	40	1416	0.37	93.82	712	0.29	85	0.15	619	0.73
<i>Quercus macrocarpa</i>	Bur oak	41	1261	0.33	94.14	797	0.32	316	0.57	148	0.18
<i>Carya ovata</i>	Shagbark hickory	42	1150	0.30	94.44	1016	0.41	100	0.18	34	0.04
<i>Populus nigra 'italica'</i>	Lombardy poplar	43	897	0.23	94.67	763	0.31	33	0.06	101	0.12
<i>Thuja occidentalis</i>	Arborvitae/Cedar	44	879	0.23	94.90	733	0.30	54	0.10	92	0.11
<i>Pinus resinosa</i>	Red pine	45	858	0.22	95.12	618	0.25	69	0.12	171	0.20
<i>Picea glauca</i>	White spruce	46	765	0.20	95.32	504	0.21	102	0.18	159	0.19
<i>Platanus x acerfolia</i>	London plane tree	47	763	0.20	95.52	507	0.21	46	0.08	210	0.25
<i>Prunus (species)</i>	Cherry (ex. black)	48	760	0.20	95.72	349	0.14	256	0.46	155	0.18
<i>Sorbus aucuparia</i>	Mountain ash	49	748	0.19	95.91	447	0.18	258	0.46	43	0.05
<i>Pinus nigra</i>	Austrian black pine	50	692	0.18	96.09	539	0.22	96	0.17	57	0.07
<i>Betula nigra</i>	River birch	51	619	0.16	96.25	479	0.20	52	0.09	88	0.10
<i>Gymnocladus dioica</i>	Ky coffeetree	52	616	0.16	96.41	522	0.21	13	0.02	81	0.10
<i>Acer nigrum</i>	Black maple	53	544	0.14	96.55	534	0.22	3	0.01	7	0.01

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

364,026

245,627

55,550

62,849

*** less than .01 %

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.

Literature Cited

1. Arnold, Henry F. 1980. *Trees in Urban Design*. Van Nostrand Reinhold. New York. 168 pp
2. Grey, Gene W. and Frederick J. Deneke. 1986. *Urban Forestry*. John Wiley and Sons. New York. 299 pp
3. Harris, Richard W. 1992. *Arboriculture*. Prentice Hall. Englewood Cliffs, NJ. 674 pp
4. Wyman Donald. 1965. *Trees for American Gardens*. The MacMillan Company. New York. 502 pp

Indiana University Northwest
3400 Broadway
Gary, Indiana 46408