



The Urban Forest

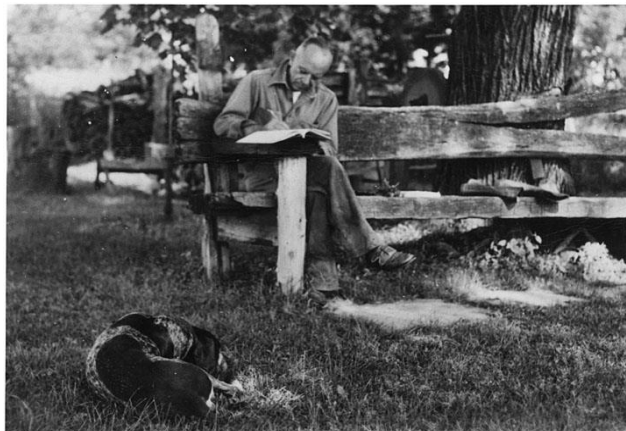
A vision for the Future with an Eye on the Past.

Stephen McCarthy, RLA

14-032

This vision for the urban forest is fundamentally inspired by the enduring writings and teachings of the great American author, teacher, ecologist, forester, and environmentalist, Aldo Leopold.

*“Like the shrew that burrows in the maple woods, we take our environment for granted while it lasts. Unlike the shrew, we make shift with substitutes. The poorest is the European “Norway maple,” a colorless fast-growing tree persistently used by misguided suburbanites to kill lawns. Wisconsin has used Norway maples to shade its capital. No governor and no citizen have protested this affront to the peace and dignity of the state.” Aldo Leopold, *The Last Stand*, 1942.*



*“Examine each question in terms of what is **ethically** and **aesthetically** right, as well as what is **economically** expedient. A thing is right when it tends to preserve the **integrity, stability, and beauty of the biotic community**. It is wrong when it tends otherwise.” Aldo Leopold, *A Sand County Almanac: With Other Essays on Conservation from Round River*, 1949*

The Urban Forest

‘Native First’ Tree Selections for Public Landscapes

Leopold’s 1942 comments regarding tree selection for the capital grounds may well be the first time that tree selection for public spaces was identified as an important landscape, environmental, and social issue worthy of serious consideration. As Leopold so accurately stated, “we make shift with substitutes.” His insight takes us beyond ordinary horticultural considerations behind tree selections for public landscapes, to the ever more important environmental and cultural benefits provided by indigenous species. Leopold is calling us to adopt a perspective that values and fosters these benefits and to get beyond the restricted shrew-like vision of “taking our environment for granted while it lasts.” His prose and dry wit remind us not to “shift,” not to be swayed by popular horticultural practices, but to uphold our environmental and cultural values, especially now for our urban forests.

The urban forest, the collective sum of all wooded areas in an urban setting, has taken on a higher profile as environmentalists and municipalities have become more aware of the vital roles this resource serves. Trees not only enhance the aesthetic quality of the landscape, they improve water and air quality, reduce atmospheric carbon, modify climate, and provide wildlife habitat, all of which contribute significantly to the overall health of the urban environment. Whether the topic is carbon sequestration, storm water management, wildlife habitat, or preserving regional natural heritage, research by an array of professionals is showing that the potential beneficial impacts of the urban forest go well beyond current urban forestry practices that emphasize tree selection based on diversity, hardiness-urban tolerance, and ornamental display. In particular, Dr. Doug Tallamy, author of [Bringing Nature Home](#), has conducted research which indicates why native tree species are most beneficial to indigenous insects and birds and ultimately the survival of all other species. He stresses the fact that our existence relies on healthy functioning ecosystems. Additional research in this area has also been conducted by the Birds Without Borders – *Aves Sin Fronteras*[®] project which showed that native plant species provide greater nutritional benefits for birds than non-natives. ([The Birds Without Borders – Aves Sin Fronteras[®] Recommendations for Landowners: How to Manage Your Land to Help Birds, \(Wisconsin, Midwest and Eastern United States edition\)](#)).

With eighty percent of the U.S. population living in cities, it’s time to get creative and expand the scope of urban forestry by examining all aspects and potentials of the urban biotic

community. It's imperative that cities rewrite environmental policies or in the future face a greater reliance on surrogate rural landscapes to provide their environmental services.

My vision of 'Native First' for tree selection in the urban forest includes:

- Increased planting of suitable native species,
- Preserving the remaining vestiges of our regional landscape,
- Raising public awareness of the ecological and cultural roles of indigenous trees to improve urban forestry and,
- Adopting maintenance practices that enhance the success of new trees.

Each of these practices will contribute to enhanced environmental conditions and subsequently an improved quality of life in our urban areas.

Many municipal foresters, arborists, and landscape designers tend to perceive the urban forest as a landscape distinct from the natural landscape of the region, a kind of horticultural 'free zone,' where most anything goes and almost all trees are considered desirable. Beyond the larger goal of adding to the urban canopy, the current practice of urban forestry measures 'success' by the standard that the tree selected tolerate the location in which its placed and if it adds an ornamental element to the landscape, all the better. A more objective alternative employs a comprehensive landscape view that considers functional, aesthetic, cultural, and ecological criteria.

Upon closer examination, the assumption that all trees, regardless of origin, contribute equally toward the ecological services of our urban forest, and therefore, our overall wellbeing, is incorrect and sells short native species, the beauty of our natural heritage, and the effectiveness of efforts to create and preserve a healthy environment. Increased awareness of the biotic community, which supports and sustains the urban environment, includes the role indigenous trees play in providing food and habitat for animal and insect populations, all of which have co-evolved over eons of time. Given that a significant percentage of trees planted in the urban forest today are exotic, the obvious question to ask is: Does this practice meet the standard of "preserving the integrity, the stability, and the beauty of the biotic community?" as stressed by Leopold.

We would be able to answer a resounding "yes," to this question in the future if we adopt a 'Native First' commitment to tree selection for our urban forests.

A Tree is a Tree

Listed below are a few examples of tree plantings on public lands that should evoke a similar response to those expressed by Leopold in his comments regarding the capital grounds:

- A Norway Maple memorial tree planted in Door County's magnificent Peninsula State Park, which features a Sugar Maple/Beech scientific area.
- Purple-leaved Norway Maples newly planted at the hallowed ground of Gettysburg National Cemetery, the site of Lincoln's Gettysburg Address. These trees stand out as jarring artifacts amid the solemnity of this historic site appearing out of place and unrepresentative of the American watershed event that occurred 150 years ago.
- European Alder, an invasive species, planted in a new State Park and in a botanic garden adjacent to an extensive river/lagoon complex.
- Silver Poplar and Norway Maple planted in an urban State Forest as examples of current urban forestry.
- Lastly, nonnative trees introduced into a landmark park in Appleton, Wisconsin amongst an uncommon and extensive canopy of indigenous oaks and hickories.

As an Appleton native, I have a long view of this once exceptional heritage landscape. Foresters or landscape personnel have repeatedly planted exotic species in an effort to diversify and 'beautify' the park until the overall landscape composition has been diminished. The result of this insensitive planting is that this exceptional heritage landscape is in a slow state of decline. It has become a landscape of mixed metaphors and non sequiturs, awaiting the next indignity of more nonnative ornamental planting. Historically this park was an exceptional exhibit of Wisconsin's "beauty and stability" of its "biotic community," that the public could access and enjoy at will. Unless the current planting trend is reversed this landmark park will continue to be tinkered with until finally there is little to no sign of the original landscape left. This same insidious scene of declining regional landscape character and the replacement of native species with exotics is being repeated in parks, campuses, and other public landscapes across the country. Instead of being taken for granted, heritage landscapes should be celebrated as important remnants of our natural history worthy of friends groups and restoration and preservation efforts.

All of these examples typify tree plantings in many of our public landscapes that are funded by trusting and largely unquestioning taxpayers.

To note, The *Invasive Plant Atlas of the United States* website states, "*Norway Maple has invaded forested ecosystems throughout the northeastern United States and parts of the Pacific Northwest. Once established into a forest, it has the ability to shade out the native understory and out-compete the native tree species.*" The Norway Maple has also become invasive in some parts of Wisconsin. Sadly, this was the dominant species that municipal foresters and the landscape nursery industry chose as the primary replacement for the American Elm. Similarly, for many years tax dollars were used to fund the planting of Russian Olive trees and Autumn Olive shrubs along highways throughout the state. Today

these are known to be invasive plants, and we see Autumn Olive spreading rapidly across the landscape, just one of a cadre of numerous invasive pests to invade Wisconsin's native plant communities and natural landscapes. We now realize that planting "any tree" will not serve the future of our urban and regional forests, and we must avoid the misinformed plantings of invasive species.

Axiomatic Standards

Many municipalities have a list of preferred street trees that are recommended by the landscape industry, have a wide tolerance of urban conditions, and are readily available commercially. The current standard regarding what to plant is influenced by the perceived need to 'mix it up,' a response to the widespread loss of American Elm to Dutch elm disease and ash to emerald ash borer. Based on personal observation along with conversations with urban foresters, there is an emphasis placed on species diversity in order to limit potential impact of future tree diseases and to create visual diversity. It is not unusual for a city block to include a wide variety of different species/cultivars.

Streetscapes can present particularly difficult conditions for establishing and maintaining healthy trees, but that doesn't explain why urban foresters and landscape professionals frequently select nonnative trees. What I've heard from urban foresters is, "native trees won't grow there" and, "we plant trees recommended by and available from the nurseries." This is having a deleterious effect not only on our streetscapes, but this mindset is spilling over into tree selections for parks and other public landscapes. It perpetuates the myth that nonnative trees are best suited to urban conditions.

This bias toward exotic species and their cultivars has had the following negative effects:

- (1) The introduction of invasive species, (85% of the woody invasive plants in the U.S. have been introduced by the horticultural industry)
- (2) A visually chaotic assemblage of trees along our streetscapes and in our parks etc.,
- (3) Trees that are seasonally out of sync with the phenology of our region creating late season leaf cleanup problems for municipalities and homeowners,
- (4) Species that do not provide viable habitat for native wildlife and insects, and
- (5) The loss of regional landscape character.

It's important to define 'native tree' as used here. In order to address the variety of stressful urban environmental conditions that trees must tolerate it requires that 'native' be defined more broadly than just those indigenous tree species found in natural plant communities within a limited geographical area. As used here for application in Southeastern Wisconsin it includes indigenous trees found within 150 miles of Milwaukee along with naturally occurring hybrids and selected cultivars of those trees.

Here in Southeastern Wisconsin, planting urban tolerant street trees such as Chinquapin Oak, Swamp White Oak, Hackberry, Freeman Maple, Kentucky Coffeetree, Schuettes Oak, Bur Oak, Honey Locust, American Linden and disease resistant American Elm, along with cultivars of these species, would be a prime place to start. Along with all of the above trees, numerous other native species would be ideal candidates to enhance our school yards, cemeteries, public institutions and parks where many of the most restrictive urban planting conditions do not occur. Artistic planting of these species would align with nature's design principles of harmony, diversity, and order and preserve our indigenous regional landscape character while providing enhanced wildlife benefits. It's important to stress that as Dr. Tallamy has stated, "nonnative plants do not support local food webs, and without local food webs, the biodiversity that runs the ecosystems that support humans disappears".

Ecology meets Economy – Water & Landscape

In today's economic climate, cities across the country vie for a competitive edge and those cities that develop a reputation as a dynamic urban environment, building a green reputation that fosters cutting edge design and technology along with a welcome eye toward emerging green issues, have an advantage in the race to attract new business and highly educated and technically trained young adults. Exceptionally designed and maintained parks, bike trails, urban plazas, public art, reclaimed waterfronts and streetscapes are the signature landscape features that define and help to separate vibrant cities from the rest. Visionary civic leaders accept this challenge and have realized the value in leaving no 'green' stone unturned.

Imagine for a moment if the City of Milwaukee, in partnership with Milwaukee County who administers the county park system, were to become the first major American city to celebrate its indigenous landscape by implementing a forestry program that featured 'native first'. A landscape zoning code with a visionary statement specifying an annual percentage for 'native first' tree planting would reinforce the new 'Refresh Milwaukee' initiative while heralding a new standard of urban environmental awareness. For the 'Fresh Coast Capital,' addressing both water and landscape together, would create a comprehensive cutting edge approach that fits hand-in-glove with the city's new sustainability program.

Progressive municipalities stand to gain from enlisting 'native first' tree policies by developing education campaigns that inform the public of the significant environmental and cultural benefits of planting native tree species. The 'native first' methodology views public landscape tree selection through an ethical lens focused on commitment to the environment, concern for the expenditure of public tax dollars, and qualitative versus arbitrary outcomes.

Genus Loci

When practiced with skill, landscape design is a balance of art and science, not often apparent to the viewer. Some of the most gifted Midwest landscape architects such as Jens Jensen and Darrel Morrison studied the native landscape and employed nature's design principles in the landscapes they created. Their intent was not to copy nature, but rather to capture the beauty of the native landscape and enhance its qualities through elements such as artful spatial composition and the control of light and shadow. Their masterful handling of native flora resulted in a seasonally dynamic landscape, in tune with climate and ecology of the region. They intentionally avoided novelty plants and exotic ornamental varieties, as well as highly formal European designs, opting instead for a more democratic and regional approach. To the lay person these highly informed and artful landscape designs would appear to have been simply created by nature. On the East coast, A.E. Bye was strongly influenced by the work of Jensen and sought to give coherence and unity to the landscape scenes he created by using native plant species. Each of these landscape architects developed a personal style that married his sensitivity to nature with an artistic touch.

Today, many of our public landscapes suffer from arbitrary and uninformed planting decisions and could benefit from contextual landscape design that stresses regard for aesthetic and ecological outcomes. In particular, government agencies stand to gain from applying design theory and strategies from the body of work and teachings of these three landscape architects when drafting their comprehensive urban forestry mission statements. For individual landscape practitioners, familiarity with the work of these landscape architects and employing their practice of studying the regional landscape could help inform and inspire aesthetic direction for manmade landscapes.

Nature's design principles are broad guidelines that leave opportunity for artistic expression. To be clear, it is not my intent to suggest that it is enough to simply let things go wild or that all public landscapes exhibit a naturalistic appearance. On the contrary, one of the best urban examples of a stylized landscape that incorporates these principles is landscape architect Dan Kiley's design for the South Garden at the Art Institute in Chicago. He resplendently captured the spirit of place or *genius loci*. His design features a bosque of stratified native Hawthorn and picturesque Honey Locust as the primary trees that frame the garden and create a beautiful oasis-like setting for Laredo Taft's Sculpture of the Great Lakes. From the trees selected to the regional significance of the art, to even its axial relationship to architecture across Michigan Avenue, his garden exemplifies all the best in connecting to both the regional landscape and its immediate surroundings. The native trees Kiley chose have not only survived 50 years in the heart of downtown Chicago, but have done so in a limited growing medium over a parking garage. For all of these reasons this exceptional project is worthy of recognition and is a testament to the durability of certain native species in a most challenging urban landscape.

Regionalism or Landscape Transformed

Unless communities reverse the trend and begin to value what is left of their landscape heritage the remaining vestiges will be lost in time. Public landscapes everywhere are an opportunity to preserve and celebrate our biological heritage and provide the sense of place we value as we travel from one region to another. Landscape regionalism has suffered as the same exotic trees are repeatedly sold and planted across the country. It's the landscape equivalent of the architectural image repeated in towns everywhere with strip malls, mammoth parking lots, and the usual suspects of big box stores.

Where remnants of our native forest persist, as in the earlier example of the park in Appleton, WI they are frequently altered piecemeal over generations, changing slowly until only the most ardent observer would realize the loss. When the native legacy trees are gone from our parks or school grounds, what will be left - a horticultural menagerie of decisions based on hardiness, novelty and ornament - a landscape transformed? Well designed streetscapes and other public grounds that feature native woody plants are seasonally beautiful. As Leopold once stated, "*We're remodeling the Alhambra with a steam shovel and we're proud of our yardage.*"

We've lost our streetscapes lined with the great American Elm and its characteristic vase shaped form that created Gothic cathedral-like canopies spanning blocks at a time only to have it replaced to a large extent by the commercially popular Norway Maple, an expedient choice with long term negative consequences. Today a similar situation is pending as we await the loss of two prevalent native trees that occur in most public landscapes, Green and White Ash, due to the onslaught of the Emerald Ash Borer. What species will the urban forester chose to replace these natives? What species will the nursery industry and horticulturists promote as suggested replacements this time? Will the preservation of regional landscape character and ecological connections between tree species and indigenous insects and animals become part of that conversation or will it be a business decision based on current inventory and studded with phrases like 'newest introduction' and 'gold medal winner'? If the replacement of the American Elm is any indication of the landscape impact that can be expected this time around, it may be in the best interest of all if the issue were well vetted before replacement action begins. Or as the saying goes when an informed course of action is required, 'don't just do something, stand there.'

Our Obligation and Opportunity

Leopold's observation about the capitol grounds can be applied to public landscapes everywhere. These landscapes form the backbone of what is known today as 'green infrastructure' and provide a place where our indigenous natural heritage can preserve ecosystem function, and be respected, represented, and preserved for future generations. We

can choose to be the first generation of citizens and green industry professionals to stir our ecological conscience and apply 'native first' tree selection criteria to these spaces. Contrary to most urban forestry programs which rely heavily on exotic trees, the proposed 'native first' approach exemplifies an informed humility and respect toward our place in nature and seeks to foster healthy functioning natural systems that are essential to environmental sustainability in the urban context.

For the most part taxpayers have been relatively unmoved by the issue of what types of trees are planted in public landscapes and seldom speak out unless there's a disease outbreak or if trees are targeted for removal. Given the problems that have resulted from trees that have become invasive, coupled with other concerns described herein, it may be in the best interest of taxpayers, not to mention the environment, if we were to reassess our level of interest. There is far more at stake than previously imagined and as the owners of all public landscapes we have responsibilities and obligations beyond merely funding its upkeep.

Best Management Practices

The following **recommended best management practices for tree selection on public lands** take into account functional, aesthetic, cultural and ecological concerns:

- (1) Prohibit the use of all invasive plant species in public landscapes
- (2) Adopt 'native-first' tree planting ordinances and rewrite landscape ordinance program statements and specifications. Promote the ecological and cultural advantages of native species.
- (3) Discontinue the use of novelty trees which includes variegated, red-veined, contorted, or other hyper eye-catching aesthetic characteristics
- (4) Establish a benchmark for native trees as a percentage of annual plantings
- (5) Create a 'Friends of Our Public Landscapes' group and identify and nominate historical or botanically significant landscapes, (parks, boulevards, public institutions, historical neighborhoods, etc.) Part of the designation process would require a list of trees appropriate for planting at the site.
- (6) Prepare Tree cutting and tree replacement ordinances

The Marketing Wave – Impulse Driven

Scientific advancements in propagation and genetic modification techniques coupled with marketing campaigns have significantly increased the pace and range of new plant introductions. Aesthetic qualities of new ornamental introductions - particularly annuals, perennials, and shrubs - are changing rapidly as a new ultra marketing wave has taken over the horticulture industry. These new ornamentals are being developed to drive sales primarily for the container market with an emphasis on new colors, color combinations,

showier flowers, and colorful leaves in an effort to create impulse buying at the garden center and online.

Many new tree cultivars are being introduced every year and these new ornamental varieties can be hard for the landscape practitioner to resist. We have tri-colored Beech, weeping and purple Birches, variegated Maples, contorted Locusts, dwarf and purple everything to create 'new' appeal. The longstanding practice of promoting and distributing new ornamental varieties has created the "shift with substitutes." Consider the lesser marketing, distribution, and public awareness of the disease resistant strain of the American Elm. Originally made available to wholesale nurseries in 1994, these selections have only recently becoming more widely available and are limited to wholesale nurseries. This native species was a landscape icon yet receives relatively little use in public landscapes today as urban foresters are selecting and planting Asian hybrid elms in ever increasing quantities.

With nature's design principles of harmony, diversity, and order as a guide, we should bear in mind that no wild tree population is purple. People have a fascination with novelty plants in the landscape but when novelty is incorporated erratically throughout our public landscapes as in the wide-spread use of purple-leaved trees such as 'Crimson King' Maple, red-veined Flowering Crabapples, and various Plums, they become a visually discordant note rather than part of a landscape symphony. This issue is particularly acute in the Midwest. Unfortunately, sales of these trees appear to be on the rise. As more and more exotic and novelty trees are planted, our public landscapes take on an increasingly artificial and unattractive appearance. The current overuse of ornamental exotic species can be compared to a sugar rich diet. They exhibit a flash of visual novelty but when compared to native species they lack the essential nutrients necessary to sustain ecological health.

Species and Nativars

In an effort to accelerate discussion about the benefits of native tree species and cultivars of native species (nativars), a recommended tree list is included in the attached addendum. This is not a purist approach to selecting trees for urban forestry but rather a balanced effort that promotes the use of native species and their cultivars as a first option as conditions allow. Additionally, it is not intended to say that nonnative trees do not have an occasional place in our urban landscape and a few of the most urban tolerant species are included in the accompanying list; however, they are recommended as an exception rather than the rule. In that sense, this list differs considerably from the norm of almost all urban forestry programs today. In order for 'native first' urban forestry to be feasible, the commitment to native tree selections by public officials and landscape professionals is needed to create the demand, and thus the 'market' for greater distribution of native species in our nurseries. Adopting 'native first' as a best management practice will not only make native selections more readily

available, but will also influence horticulturalists and the public to choose to plant natives over exotics.

Changing Public Attitudes

Since the 1960's many reversals have occurred in public attitudes toward environmental issues. It wasn't long ago that industrial chimneys sent unfiltered pollutants skyward and drain pipes spewed pollutants directly to streams, rivers, and lakes, all the time being socially accepted as 'run of the mill' side effects of industry; smoking was permitted in the workplace as well as public buildings; and DDT was sprayed from mobile foggers to kill mosquitoes while excited children ran behind or followed on their bicycles down residential streets. In retrospect, most people have accepted the prudence of reassessing these practices, and hindsight shows that rethinking these customs has improved public health conditions. Another example of change in practice following our raised environmental awareness is the concern for urban storm water management. Twenty years ago storm water best management practices were not a concern of municipalities. Today these practices are mandated on public and private projects across the country, and government agencies are committed to educating the public on the role that we can play as involved stewards of our urban communities.

Re-envisioning the potential of our public landscapes is a resource friendly concept and requires no economic sacrifice from any industry nor does it place additional burden on taxpayers. Like the storm water example above, government agencies have the opportunity and obligation to set a new standard and model that will raise public awareness, particularly in regard to the green infrastructure services that trees provide. In the spirit of environmental awareness, now is the time for municipalities and landscape practitioners to look beyond the current accepted standards of urban forestry and the nursery industry that promote exotic species, and instead focus on trees as an essential element of an ecosystem that serves multiple functions in our urban environment with native species being the most adapted to fulfilling complex ecological niches. In a progressive move, the Milwaukee Metropolitan Sewerage District is the first public agency to adopt 'Native First' planting policies, and responsibly prohibits planting invasive species on all district properties and projects.

The Long View

Aldo Leopold's prescient, insightful, and thought provoking writings remain as environmentally and socially significant as the day they were written and the land ethic he prescribed is as relevant today as ever. These writings continue to guide and shape our environmental and social conscience as we aim to balance economic ambitions with ecological realities.

His vision for a community land ethic is his challenge and gift to us. Pursuit of that land ethic requires our focus be on the long view. Focusing on the long view leads us to make a paradigm shift, whereby municipalities and government agencies adopt new policies that raise the awareness of the role of our urban forests, stress the importance of preserving its natural heritage and ecological health, and commit to 'native first' tree selections for public landscapes.

Leopold's disheartening experience on the Capital grounds led to a beneficial message and lesson. The measure of this lesson will be the extent to which we heed his words "*like the shrew..., we take our environment for granted while it lasts.*"

Stephen McCarthy, RLA

March 2014 Milwaukee, WI smccarthy@mmsd.com

Brief Bio: w/ Representative Projects: *Award Winning
Graduate U. Wisconsin B.S. Dept. Landscape Architecture 1977

Design/Build 1980-1984, ***Castonguay Residence**, Lake Forest, IL., North Shore Synagogue, Glencoe, IL.

Lake County Forest Preserve District-Illinois: Development and Natural Resources Manager, 1985-1999 Designed and managed construction of numerous large scale natural resource based projects including:

***Independence Grove**, Half Day Preserve, Buffalo Creek Preserve, Daniel Wright Woods, and 24 miles of the ***Des Plaines River Trail**.

Land Planning/Landscape Architecture, Thompson Dyke Associates, Northfield. IL. 1999-2000 Highland Park Library, Highland Park IL., Waterfall Park, Chicago, IL.

Private Consulting: 1985-2008: Landscape Architecture and site planning for numerous residential, commercial, and institutional projects including:

Solo Cup Headquarters, Highland Park, IL., Underwriters Laboratory, Northbrook IL.

* **Hulseman Residence**, Winnetka, IL., Luning Residence, Bailey's Harbor, WI., Kingsley School, (Pro Bono) Evanston, IL., Pick Residence, Northfield IL.

MMSD, Milwaukee Wi. Greenseams Program Manager, 2000 – Present

Purchased 2700 acres, Restored 320 acres prairie/wetlands, reforestation - 100,000 native trees.

Not for Profit Board Affiliations:

Urban Open Space Foundation (Currently Center for Resilient Cities)

Bird City Wisconsin

Southeast Wisconsin Invasive Species Consortium

Recommended Trees for Public Landscapes in Southeastern Wisconsin

Due to difficult conditions in urban environments it's important to include not just native species but also varieties, hybrids, and cultivars of native species for inclusion in an urban tree list.

Trees with an *asterisk can be used on primary streets and roadways where urban conditions are often difficult. Species appropriate for parks, school grounds, boulevards etc. but not recommended for difficult streetscape conditions are indicated '**P**'. Trees without an asterisk are not generally recommended for use along streets with narrow or nonexistent lawn areas between the street and curb.

Care should always be taken when selecting trees to make sure the tree is appropriate for the site and existing conditions based on the cultural requirements of the species.

NOTE: Fraxinus species – Ash, to date a valuable street tree and choice for difficult urban conditions, are not included in this list due to the recent outbreak of Emerald Ash Borer.

Acer x freemanii, **Freeman Maple** *'Autumn Blaze', 'Marmo', *'Celebration', *'Sienna', *'Armstrong', 'Autumn Flame', 'Matador', 'Scarlet Sentinel'

Acer nigrum **Black Maple**, 'Green Column'

Acer rubrum **Red Maple**, 'Red Sunset', 'Kirkpatrick', 'Northwood', 'October Glory', 'Morgan', 'Bowhall', 'Columnare', 'Schlesinger', 'Silhouette', 'Tilford', 'Wagner', Karpick, Scarlet Sentinel, 'Redpointe', Sun Valley, 'Burgundy Belle', 'Brandywine', 'Autumn Radiance', 'Autumn Spire', Scarlett Jewell, 'Northfire', 'Sun Valley'

Acer saccharinum **Silver Maple**, *'Improved' Silver Maple, 'Skinneri' *'Silver Queen', Cut-leaved Silver Maple, 'Silver Cloud',

Acer saccharum **Sugar Maple**, 'Legacy', 'Green Mountain', 'Commemoration', 'Coleman', 'Flaxmill Majesty', 'Monumental' 'Bonfire', 'Majesty', 'Goldspire', 'Crescendo', 'Fall Fiesta', 'Unity',

Aesculus glabra * **Ohio Buckeye** 'Sunset'

Amelanchier spp. **Serviceberry**, Downy, *'Cumulus' (under wires or where a smaller tree is desired), 'Majestic', 'Autumn Brilliance' '**P**', 'Robin Hill', 'Princess Diana' '**P**'

<u>Betula nigra</u>	River Birch , ‘Heritage’, ‘Summer Cascade’, ‘Fox Valley’
<u>Betula papyrifera</u>	Paper Birch ‘Renaissance Reflection Birch’ ‘varens’ ‘Prairie Dream Paper Birch’ ‘P’
<u>Carpinus caroliniana</u>	Musclewood , ‘J.N. Strain’, ‘JN Globe’, JN Upright’
<u>Carya ovata</u>	Shagbark Hickory ‘P’
<u>Carya cordiformis</u>	Yellowbud Hickory ‘P’
<u>Celtis occidentalis</u>	* Common Hackberry , *‘Windy City’ *‘Prairie Pride’
<u>Cercis Canadensis</u>	Redbud ‘P’
<u>Crataegus crus-galli</u>	Cockspur Hawthorn , ‘P’ * Inermis Thornless Cockspur Hawthorn (tough, urban plant for under wires) *‘Cruzam’ Crusader Hawthorn
<u>Crataegus ‘Hooks’</u>	Hooks Hawthorn ‘P’
<u>Crataegus mollis</u>	Downy Hawthorn ‘P’
<u>Crataegus prunifolia</u>	Plumleaf Hawthorn ‘P’
<u>Crataegus punctata</u>	Dotted Hawthorn ‘P’
<u>Fagus grandiflora</u>	American Beech ‘P’
<u>Gymnocladus dioicus</u>	* Kentucky Coffeetree , *‘Prairie Titan; *‘Stately Manor’, *‘Expresso’
<u>Gleditsia triacanthos</u> , ‘Imperial’, *‘Moraine’	Thornless Honeylocust , * ‘Skyline’, * ‘Shademaster’, *
<u>Juglans nigra</u>	Black Walnut ‘P’
<u>Malus ionesis</u>	Klehm’s Improved Bechtel Flowering Crabapple ‘P’
<u>Nyssa sylvatica</u>	Black Gum
<u>Ostrya Virginiana</u>	Ironwood ‘P’

Populus tremuloides Trembling Aspen ‘P’

Populus deltoids ‘Siouxland’ ‘Souixland’ Cottonwood

Prunus serotina Black Cherry ‘P’

Prunus virginiana Pin Cherry ‘P’

Quercus alba White Oak

Quercus bicolor *Swamp White Oak

Quercus ellipsoidalis Northern Pin Oak, ‘Majestic Skies’

Quercus macrocarpa * Bur Oak

Quercus muehlenbergii *Chinquapin Oak (probably the most urban tolerant oak of all and with the least amount of seed litter)

Quercus rubra Red Oak

Quercus x schuetti * Schuettes Oak

Robinia psuedoacacia Black Locust ‘Chicagoland Blues’

Tilia americana American Linden, *‘American Sentry’, *‘Boulevard’, *‘Legend’, ‘Redmond’ ‘Wandell’

Ulmus americana American Elm *‘New Harmony’, *‘Princeton’, *‘Valley Forge’ *‘American Liberty’, *‘Washington’ * ‘Jefferson’

Non-invasive trees recommended for urban sites.

Note: These trees are not intended for Park use since native species will tolerate urban park conditions and are recommended to preserve our regional landscape character. *There are no purple leaved trees recommended for use in any public landscape.*

Abies concolor Concolor Fir

Crataegus phaenopyrum *Washington Hawthorn (under wires)

Gingko biloba Gingko *‘Princeton Sentry’, *‘Magyar’, (other male clones)

Liriodendron tulipifera Tulip Tree *‘Ardis’, ‘Compactum’

<u>Maackia amurensis</u>	Amur maackii (good for under wires)
<u>Platanus x acerfolia</u> *'Columbia', 'Exclamation'	London Planetree *'Morton Circle', * 'Liberty' ,**'Ovation' (Platanus occidentalis is indigenous to the Illinois River Valley in Northern Ill)
<u>Syringa reticulata</u>	Japanese Tree Lilac *Summer Snow, *Ivory
Taxodium distichum	*Bald Cypress 'Shawnee Brave'
<u>Tilia cordata</u>	Littleleaf Linden * 'Glenleven', * 'Corzam', * 'Chancellor' 'Norlin'
<u>Tilia tomentosa</u>	* Silver Linden 'Green Mountain'

Native Evergreen Trees for Park, Parkway, Institutions, etc.

<u>Juniperus virginiana</u>	Eastern Red Cedar 'Hillii' Hills Dundee Juniper 'Canartii' Canaert Juniper American Larch, Tamarack
<u>Larix laricina</u>	
<u>Picea alba</u>	White Spruce
<u>Pinus strobus</u>	White Pine
<u>Pinus resinosa</u>	Red Pine
<u>Thuja occidentalis</u> Arborvitae	American Arborvitae Dark Green Arborvitae, 'Techny'
<u>Tsuga Canadensis</u>	Eastern Hemlock