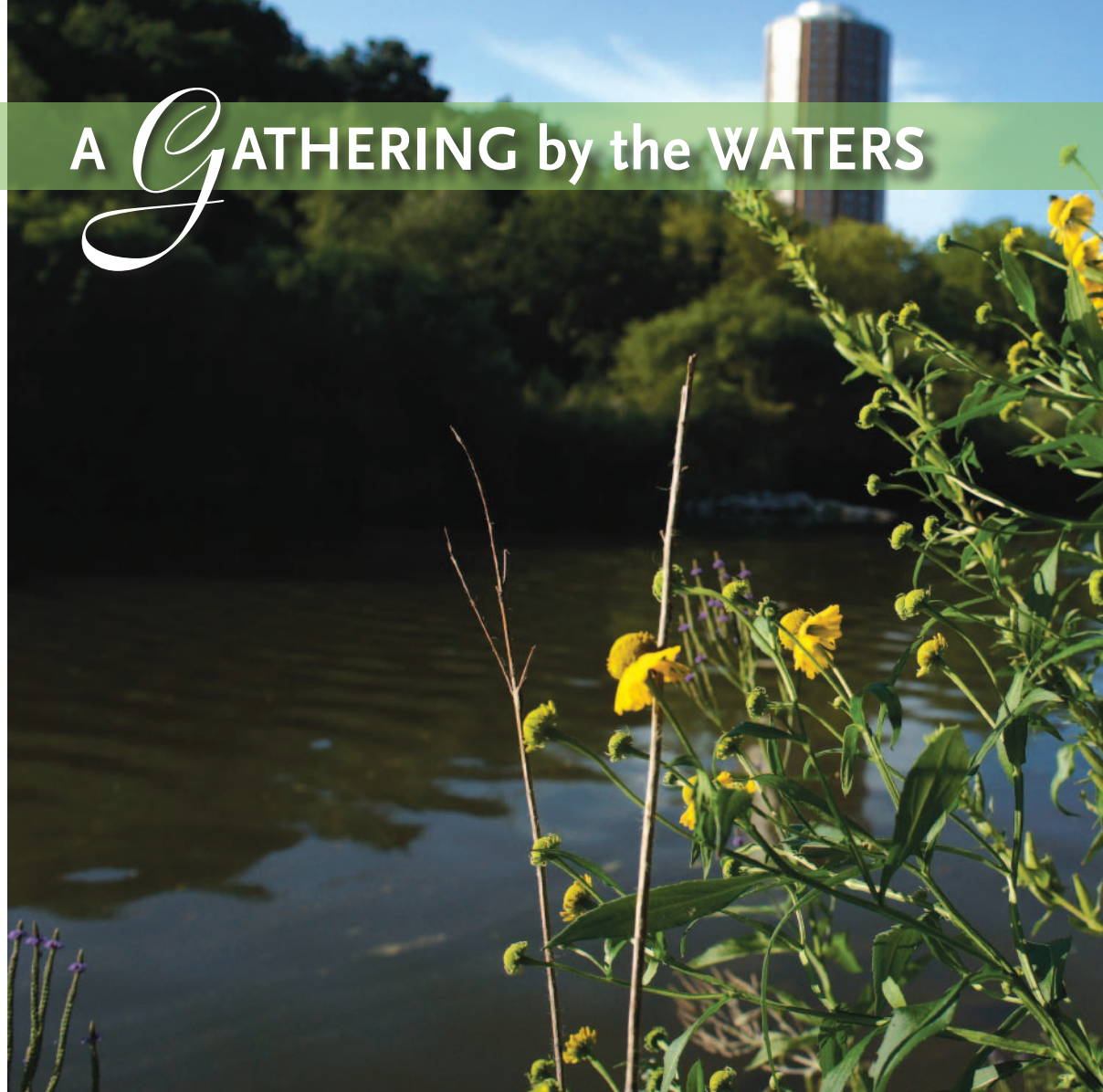


# A *G*ATHERING by the WATERS



## A New Arboretum Develops on the East Bank of the Milwaukee River

Last year, when I met with a team of naturalists developing a new arboretum on the banks of the Milwaukee River, it was the first time I had walked that watercourse in nearly 30 years. I had spent many days back in the 80s walking its lonely banks. It was a bit of nature close by in those “auto-less” college years, and I grew to love it. I sought refuge from my hot apartment under the canopy of trees in

August, or botanized in spring for my plant taxonomy class at the university

I have lived in many great river cities since those days, including St. Louis on the Mississippi and Cologne, Germany, on the Rhine. (Even now I live so close to the Snoqualmie River that its floodwaters lap at my doorstep in bad years.) Yet, of all these rivers it is not the greatest or most historic that has touched me most deeply, but the shallow 104-mile-long Milwaukee River.

In the 80s, it was a post-industrial, degraded habitat with feral charms, which held wonder for me but caused fear in most. It seemed a sad fate for a river whose name is popularly believed



LEFT: *Helenium autumnale* (sneezeweed) and *Verbena hastata* on the river bank.

ABOVE: An old park entry sign.

to mean “a gathering of the waters.” It was home to many Native Americans for centuries and integral in the founding and development of the city of Milwaukee. So I just had to see the new 40-acre arboretum developing on the banks of a familiar river—a river that was once dammed and ran slogging through a crime-ridden neighborhood, and was once toxic with municipal, agricultural and industrial waste.

### A Diverse Partnership

The arboretum was the dream of Pieter Godfrey, an architect and historic preservation expert, who owned land along the river adjacent to 28-acre Riverside Park—an important but

neglected city green space originally designed by Frederick Law Olmsted. Godfrey shared this dream with his neighbors at the Urban Ecology Center (UEC). The UEC, an environmental education organization with three community centers adjoining Milwaukee County parks, including Riverside Park, quickly became a leader in the realization of this dream.

Though the primary function of the UEC is environmental education, it has played a huge role in reclaiming 70 acres of urban wild space throughout the city by removing invasive plants and recreating ecosystems to promote biodiversity. It also helped unite a group of influential public, non-profit and private partners to



**ABOVE:** Wildflowers in a clearing near the floodplain forest at the new Arboretum.

**BELOW:** Volunteers plant a wet prairie in the floodplain.



support the arboretum project, including the Wisconsin Department of National Resources, Milwaukee County Parks, the Milwaukee River Greenway Coalition, the USDA Forest Service, and crucially (in terms of funding), the Rotary Club of Milwaukee.

When the Rotary Club of Milwaukee was looking for a project to fund in celebration of its centenary, an arboretum as a gateway to the newly created 800-acre Milwaukee River Greenway seemed ideal. Rotary Club members donated \$400,000 to create the arboretum, and this helped attract other partners and catalyzed project funding (now valued at \$8 million). Ground was broken on the Milwaukee Rotary Centennial Arboretum in June 2010.

When I met with the team of young naturalists led by UEC Senior Land Steward Kim Forbeck last year, I was amazed by how much they had accomplished in a short two years and how many partners they had enlisted. Members of the local community volunteered to pull weeds and water plants. The EPA, through the auspices

of the Great Lakes Restoration Initiative, became one of the largest single sources of financial support for the project. Many more donors of time, money and expertise followed.

### **A Patchwork of Land**

Like the Centennial Arboretum organization, formed of a diverse partnership, the land itself is a conglomeration. It is composed of reclaimed industrial land donated by Godfrey, 15 acres of Riverside Park owned by Milwaukee County, green space along the Oak Leaf Trail, and a mixed-used trail that cuts through the Arboretum, as well as city- and privately-owned river frontage exposed when a dam was removed downstream from the park in 1997. The dam, first built in 1853, separated the lower navigable industrial river from the upper scenic river.

The deepened stretch of the river above the dam became a popular water park for Milwaukeeans. From 1890 to 1910, it hosted swimming schools, water polo, boathouses and, of course, beer gardens. As the river above the

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dam silted in and water quality declined from agricultural and municipal runoff upstream, so did the popularity of the river. By the early 1940s the city declared the river unsafe for swimming. Like many American urban rivers, the Milwaukee River was given up for dead. This was the river I knew and walked.

But it wasn't dead.

What has happened since, and is happening still, is nothing short of a miracle. The waters have been revitalized by removing the dam and controlling pollutants entering the river. Tim Vargo, research coordinator at UEC, says that before the dam was removed there were only two species of fish in the upper river, now there are 30—including sturgeon that swim up from Lake Michigan to spawn. Vargo also lists over 180 species of birds that use the river basin as a flyway or call it home.

A new arboretum on the last stretch of natural, vegetated land through which the river meanders before being shunted via canal through downtown Milwaukee and into Lake Michigan is important for two reasons: Reviving degraded habitat to provide vital ecosystem services and support wildlife is one. The other, of equal importance, is increasing community access to urban natural space.

Arboretum project coordinator for UEC Aaron Zeleske considers the development of sustainable and universally accessible trails to be a vital component of the project. Already, the old Olmsted trails in upper Riverside Park have been repaved. One of the Centennial Arboretum partners, the River Revitalization Foundation, has created the East Bank Trail through the Arboretum—as part of the larger 13-mile “Beerline Loop,” which connects a number of

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**ABOVE:** Mature black willows on the rivers edge.

**OPPOSITE TOP:** Industrial land donated to the Arboretum by Pieter Godfrey and cleared for planting an oak savanna.

**OPPOSITE BOTTOM:** Black plastic smotherers riparian weeds.

Milwaukee parks and green spaces. Zeleske is looking forward to the day when, for the first time, wheelchair users will be able to access the riverbank independently.

### Restoring Native Plants

Though access is important, one of the primary goals of the fledgling arboretum is the introduction of native species to this unique riparian zone. Not only will these species be important in the educational activities of the UEC, but they will also sequester eight tons of carbon from the air each year, improve water quality, reduce storm water runoff, and create more habitat for wildlife—all within one of the most densely populated parts of the city.

When I questioned Forbeck and her team about what they thought an arboretum was, they were apologetically vague, knowing that what they were creating was not necessarily a traditional arboretum. They looked to the University of Wisconsin–Madison Arboretum, the birthplace of restoration ecology back in the 1930s, for inspiration. They do not want a collection of woody plants grown as specimens, but groups of native woody plants grown as members of larger, more complex communities of plants and animals. The plantings will be as interdependent as the partners coming together to create this arboretum.

The Milwaukee Rotary Centennial Arboretum is less than a sixth the size of our 230-acre arboretum, yet its 40 acres are blessed with a varied topography. The Arboretum has been divided along topographic lines into 10 eco-zones. Plans to represent all of the woody plants of the species-rich, forest-prairie tension zone that makes up the rich flora of southeastern Wisconsin are well underway. More than 2,200 trees will be planted, representing 72 species, including 23 species of native hawthorn (*Crataegus*). Another 70,000 shrubs and herbaceous plants representing the prairies, forests, savannas and wetlands of this area also will be planted.

Only one mile from the over 22,000-square-mile Lake Michigan, the Arboretum lies in the warmest USDA planting zone in Wisconsin: Zone



5b. The moderating effect of the lake on the harsh, upper-Midwest climate finds some southern species, like Kentucky coffee tree (*Gymnocladus dioica*), in the northernmost reaches of its range, as well as some northern species like northern white cedar or arbor-vitae (*Thuja occidentalis*) in the southern limits of its range.

### Eco-zones: Wet Prairie to Oak Savanna

At river level there will be wet prairies; these were being planted when I was there last August. After a year under black plastic—which raised the soil temperature to 180° Fahrenheit to kill all weeds (especially the extremely aggressive reed canary grass *Phalaris arundinacea*) and their seeds—the soil was ready. A combination of staff, interns and volunteers from the local community were busy planting native herbaceous species. Plants, purchased or grown from seed collected at other restored prairies, are being planted out in strips, alternating with strips of open ground directly sown with seeds. It is hoped that in a few years these newly planted prairies will supply seeds for



other restoration projects in the river basin.

The extant shrub-carr—a transitional community of plants between open, wet prairie and wetland forest that is usually dominated by willows and shrubby dogwoods—was established over a decade ago, primarily by the planting of sandbar willow (*Salix interior*) shortly after the dam was removed. The introduction of herbaceous and woody plants to this willow matrix will increase its biodiversity. An extant floodplain forest, running along the river and into a ravine in Riverside Park, is at present dominated by low-quality box elder (*Acer negundo*) and ash (*Fraxinus* species). It is being under-planted with hemlock (*Tsuga canadensis*), ironwood (*Ostrya virginiana*), pagoda dogwood (*Cornus alternifolia*) and tamarack (*Larix laricina*) to create the succeeding forest. The largest tree in the park, possibly a state champion hackberry (*Celtis occidentalis*), is found in this ravine and dates back to the Olmsted days.

On the upper banks, where the alkaline clay soils are drier, is a remnant oak woodland from Riverside Park's inception in 1890s that features mature bur oaks (*Quercus macrocarpa*)

and northern red oaks (*Q. rubra*). This area also features members of the northern mesic forest, in particular sugar maples (*Acer saccharum*). On my visit in March of 2012, educators from UEC had tapped the trees, showing students the pleasures of making their own maple syrup. There also is a beautiful small mesic prairie on this part of the park. It is managed using controlled burning, which represses non-native herbs and woody plants.

Other upland sites are designated for southern dry-mesic forest and southern mesic forest dominated by American beech (*Fagus grandifolia*) and basswood (*Tilia americana*), with an understory including witch-hazel (*Hamamelis virginiana*) and muscle wood (*Carpinus caroliniana*) and an abundance of the herbaceous spring ephemerals that make these forests a botanical attraction in spring.

An open oak savanna also is planned for the six acres of reclaimed industrial south of Riverside Park. It will be a mixed forest of chinkapin, northern pin and swamp white oaks (*Quercus muehlenbergii*, *Q. ellipsoidalis* and *Q. bicolor*), as well as other hardwoods native to

ABOVE: The largest tree in Riverside Park, *Celtis occidentalis*.

the area—like shagbark hickory (*Carya ovata*) and American elm (*Ulmus americana*)—again under-planted with numerous shrubs and herbaceous plants.

### Reviving Olmsted's Dream

Though the Arboretum does not officially open until September 28, 2013, it has already been dedicated by the National Forest Association as a “Children’s Forest”—one of only a few of the 22 nationally designated forests that are located within a major urban area. The UEC has been drawing students to Riverside Park since 2004 and engaging them in a multitude of ways, whether in the classroom settings of their eco-friendly branch building or in the wilds of the park. The new arboretum is projected to draw 15,000 students and teachers a year to UEC from 30 schools citywide.

As the saying goes, “You can’t step in the same river twice.” While I toured the Arboretum coalescing on the eastern bank of the Milwaukee River, I saw birds and butterflies flitting among the newly planted prairie and up into the old native black willows (*Salix nigra*) I used to climb. The birch bark canoes and wooden paddleboats of yore have been replaced by polyethylene kayaks; the swimmers in woolen bloomers have given way to the scantily spandex-clad joggers. The once degraded habitats are blooming with wildflowers along the jade-green waters of the river.

The banks of the Milwaukee River are no longer a place for a lonely walk, but a place to engage in a vibrant community and see a beautiful arboretum in the making. When the Milwaukee Rotary Centennial Arboretum opens this fall, the people gathered will also see Olmsted’s dream alive. The dream to create a more democratic mixing of people with his park designs has been renewed in the hands of a new generation of park stewards. ~

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