Friends of Lake Wingra

Promoting a healthy Lake Wingra
through an active watershed community

Wingra Watershed News

Fall/Winter 2012 volume 9, number 1

Cows grazing in a Wisconsin farm pasture -- an uncommon scene in the Lake Wingra watershed. Photo: Wisconsin Farm Bureau Federation

Cows Are No Scapegoats for Lake Wingra

- Steve Arnold, Chair

During my first year as board chair, I spent considerable time trying to figure out how best to engage my neighbors on matters related to Lake Wingra.

There is a clear consensus that Lake Wingra needs attention. Yet, the conventional wisdom that cleaning up Dane County's lakes is a rural (read: agricultural) problem ignores the fact that Lake Wingra is part of an urban watershed contained entirely within the City of Madison.

Lake Wingra faces multiple challenges that demand unique solutions. The carp population must be controlled. Healthy populations of native plants and animals must be maintained. Algae-producing phosphorus and other contaminants washing off our lawns, parking lots, streets and construction sites must be reduced.

Furthermore, we must do a better job of preventing winter salt from polluting our water and poisoning the lake's aquatic life.

Even though the problems are complex, there are reasons to be optimistic about Lake Wingra's future.

Three years ago, we shared our practical vision and long-term goals for improving Lake Wingra (http://lakewingra.org). This helped motivate the City of Madison to set aside funds to develop a comprehensive action plan for achieving those goals. The plan will allow us to move beyond analyzing issues to the work of identifying and implementing specific solutions.

There are many proven strategies that, if applied on a broad scale, can improve the health and condition of Lake Wingra.

The process of developing an effective management plan will require all of us as stakeholders to weigh in on these strategies and push for their implementation. Our collective voices must be heard as this critical planning process gets underway. Lake Wingra needs your interest and passion now more than ever.

Show your support by following us on Facebook, subscribing to our listserv, and keeping an eye out for opportunities to become engaged. Lake Wingra is depending on you.

Friends of Lake Wingra, Inc.

Mission

We promote a healthy Lake Wingra through an active watershed community.

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Special Thanks to: Matt Diebel, former FOLW Secretary and Vice Chair, for all his contributions and years of service on the Board. We look forward to having Matt play a continuing role as one of our Board advisors.

Become a Friend

To become a Friend of Lake Wingra, send your tax-deductible contribution to Friends of Lake Wingra Inc. c/o Office of Advancement, Edgewood College, 1000 Edgewood College Drive, Madison, WI 53711-1977. Please make checks to: Edgewood College - FOLW.

Friends of Lake Wingra, Inc.

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Vilas Park/Lake Wingra Shoreline: A Vision for the Future

- Lauren Brown

The Vilas Park / Lake Wingra Shoreline Vision Plan is the product of an Edgewood College 'Sustainability Leadership Graduate Certificate Capstone' project and a stakeholder participation workshop led by Program Fellow Lauren Brown. It presents a range of possibilities for sustainable renovations along this popular park edge.

Focusing on this stretch of shoreline is intended to build on previous efforts to address water quality issues at Vilas Beach, including attempts to manage the resident goose population. Simple improvements to the landscape and current traffic patterns could have positive benefits to both water quality and the park user experience.

In May of 2012, thirty watershed stakeholders participated in a public visioning workshop. Participants worked in groups to share how they use the shoreline, what they value most and wish to preserve, areas of concern, and ideas on ways to improve the space. A mapping exercise focused conversation and brainstorming around development of a vision for the year 2025. The group arrived at three goals:

1. Reduce traffic circulation conflicts and reprioritize pedestrian and bicycle mobility over cars.
2. Naturalize the shoreline landscape to increase habitat and lake water quality.
3. Create a stronger connection to the lake and a more inviting and attractive park/lake edge.

Comments from the workshop participants were used to develop a conceptual design plan. Their recommendations included:

- Replace the existing 33-ft. wide asphalt drive with a continuous bike path and lakeshore promenade.
- Capture runoff from paved surfaces in bio-filtration gardens parallel to the shoreline.
- Replace trampled turf and a riprap lake edge with native lakeshore plants to increase shoreline and aquatic habitat.
- Use native plantings to provide a soft frame between the lake and recreational areas, and to discourage geese gathering.
- Use paths and boardwalks to increase park accessibility and support a variety of user experiences.
- Use path-side seating opportunities that invite visitors to rest and reflect, and offer shoreline nodes that provide access for fishing, canoeing and observation.
- Relocate parking from the immediate shoreline into expanded, space-efficient, pervious parking areas at the eastern and western 'gateways'.
- Potentially limit vehicular access or omit through-traffic along the shoreline.

The Friends of Lake Wingra presented a poster of the Vision Plan at the Monroe Street Festival in September and received a lot of positive feedback.

What do you think? FOLW encourages your feedback and support as we try to move these ideas forward.

A conceptual plan and vision for the Vilas Park shoreline. Photo: Lauren Brown

Record Aquatic Plant Harvest Confirms Success of Carp Removal

- David S. Liebl

This past summer, while southern Wisconsin suffered through record heat and drought, Lake Wingra's diverse aquatic plant community flourished. The recent removal of carp and a lack of runoff led to clearer water, allowing sunlight to penetrate deep into the lake to encourage an abundance of plant growth.

Water clarity is measured using a black and white Secchi disc that is lowered into the water column and viewed by an observer looking over the side of a boat. The point at which it can no longer be seen is called the Secchi depth. This figure shows two-year averaged Secchi depths in Lake Wingra before (dotted line) and after (solid line) carp removal.

While clearer water and a thriving native aquatic plant community are welcome improvements, non-native weed growth continues to be problematic. Dense surface mats of Eurasian watermilfoil and attached algae make it difficult to swim, boat and fish. To address the problem, FOLW supports carefully targeted harvesting of nuisance weeds in accordance with an approved management plan. That plan, which is currently being updated, seeks to balance recreational opportunity with a healthy aquatic plant community that will benefit the larger ecosystem.

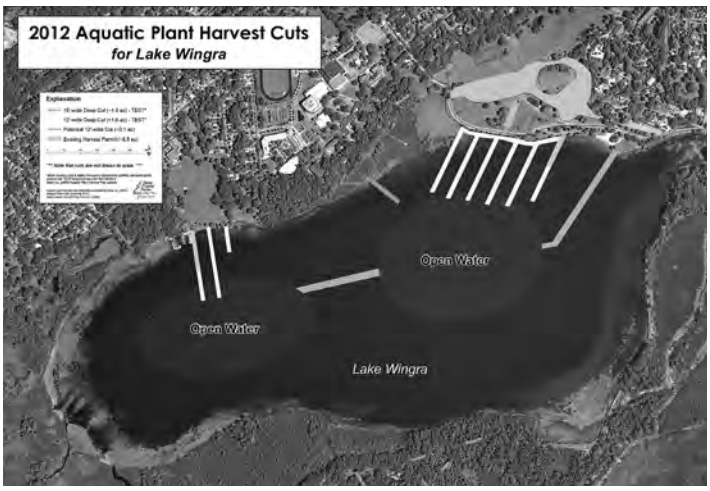
Lake Wingra, with its roughly two-dozen species of aquatic plants, is the jewel of the Yahara chain of lakes. With their dense roots that hold sediment in place, and their leaves that moderate wind-driven currents and offer cover for aquatic life, Lake Wingra's native aquatic plants are key to maintaining clean water and ample fish habitat. Therefore, while the lake's crop of problem weeds should be kept in check, care will need to be taken to avoid harming the native plant beds that are so important to the lake.

This past summer's abundant aquatic plant growth is not likely to reverse course anytime soon. Improved water clarity from lower carp numbers, a fertile lake bottom, and the continued delivery of phosphorus from the surrounding watershed all point toward bumper crops of plant growth in future years.

Consequently, Dane County will likely need to continue its harvesting program as lake users adapt to and enjoy these new (and healthier!) lake conditions.

Link to an educational poster on aquatic plant restoration in Lake Wingra: http://epd.engr.wisc.edu/pd/liebl/Wingra_Aquatic_Plant_Restoration_Poster_July2012.pdf

Link to Dane County's aquatic plant management plan: http://www.countyofdane.com/lwrd/parks/aquatic_plant_harvesting.aspx



To provide recreational access while limiting impacts to beneficial plant beds, Dane County Parks followed an amended weed-harvesting plan for 2012. Image: Dane County Land and Water Resources Department

The Remaking of Monroe Street

- Jim Lorman

Monroe Street is scheduled for resurfacing (Odana Road to Leonard Street) and reconstruction (Leonard Street to Breese Terrace) in 2015. This presents a rare opportunity to improve Lake Wingra water quality while enhancing the health and vitality of our community.

There are many exciting, innovative designs being implemented these days for "green" or "sustainable" streets. They can address issues of safety and the satisfaction of motorists, public transportation users, bicyclists, and pedestrians of all ages. They can also increase beauty and bolster the local economy.

Developing a model "sustainability corridor" on Monroe Street might include pedestrian and bicycling conveniences, educational signage, creative street art, and the incorporation of flower gardens.

Friends of Lake Wingra, in collaboration with students and faculty in Edgewood College's Sustainability Leadership Graduate Program and UW-Madison's Departments of Landscape Architecture and Urban and Regional Planning, have begun to explore opportunities provided by Monroe Street's reconstruction.

Public engagement will be key to the success of this effort, so please look for opportunities to get involved. For more information, email Jim Lorman at lorman@edgewood.edu.

Top left, composting at Midvale Community Garden; lower left, school prairie and forest at Van Hise Elementary/Hamilton Middle School; above right, rain garden at Stephens Elementary. All photo by David Thompson

Schools Demonstrate Varying Degrees of Watershed Stewardship

- David Thompson

Schools play an important role in the Lake Wingra watershed for two reasons. First, they can expose children to land-use and water quality concepts through classroom and outdoor instruction, raising awareness of pollution problems and their causes. Second, the school grounds themselves often serve as models of both good and bad watershed stewardship and sustainability.

School properties may contain large areas of water-impervious surfaces (i.e., parking lots, basketball courts, etc.) that generate lots of runoff. Runoff, if not controlled, can lead to soil erosion that ultimately clogs storm sewers and pollutes our lakes with sediment. Fortunately, there is usually ample space and opportunity at our schools to infiltrate water and help prevent this situation from occurring.

The situation at Randall Elementary, where a parking and playground area was recently redone using traditional paving materials (see photo below), struck me as an example of a lost opportunity where creative, lake-friendly design elements could have been incorporated. It also prompted my interest in surveying how well other schools are modeling good watershed-stewardship practices. A total of 16 public and private schools in (and just beyond) the Lake Wingra watershed were evaluated.

The "Watershed Stewardship" Report Card

It was inspiring to learn that nearly one-third of our schools had at least one functioning rain garden. With the possible exception of space-limited Randall Elementary, all 16 schools had more than adequate space to accommodate future rain garden sites, so the potential for improvement was great.

Most schools had a vegetable or native plant garden, but some were quite small or located far from where children spend their time outside. About 38% of school grounds contained natural areas such as prairies or forests that help soak up rainfall while connecting kids to nature.

On-site composting was evident at about half of the schools surveyed. Composting is one way to demonstrate to children that recycling works, is easy, and produces something of value.

The bad news is that almost half of our school grounds showed evidence of soil erosion caused by excess stormwater runoff. Some of this erosion was severe.

About the same percentage of schools also had garbage dumpsters that were uncovered or showed evidence of leaking, meaning contaminants could leave the site and wash into storm sewers that drain to our lakes. In addition, nearly all the schools surveyed had deteriorating pavement on their playgrounds and parking areas, and could be good candidates for water-permeable pavement.

Teachers and parents from several schools were also interviewed. The interviews revealed that physical evidence of watershed awareness generally correlates with active teachers, students and parents that push for change. While local school administrators were sometimes very supportive, increased resistance was often encountered at higher administrative levels.

Left, clear evidence of severe erosion from stormwater runoff at Thoreau Elementary; right, a leaking garbage dumpster at Cherokee Middle School.

Good Grades for Watershed Awareness

- Van Hise Elementary and Hamilton Middle Schools have large, low-lying prairies that function as excellent rain gardens.
- Thoreau Elementary School has a new, well-designed rain garden. In the future, it may need to be expanded to accommodate the much larger paved area it serves.
- Aldo Leopold has a large, rainfall-collection basin at the end of a long swale. This site has the potential to serve as a very functional rain garden. The school also abuts a bikeway, wooded area, and park. There are large pines along the back edge, and a little amphitheater is being built among the trees.
- Edgewood campus maintains a wooded shoreline and has at least six rain gardens that accept water from its various parking areas.

Above, rain gardens could be built at Aldo Leopold School to infiltrate water from roof downspouts. Left, a good example of a recently planted rain garden is found at Thoreau Elementary.

Rex Merrill and Roger Bannerman record data at the Nakoma Duck Pond spring with Kris Stepenuck, Wisconsin DNR Volunteer Stream Monitoring Program Coordinator.

Putting Lake Wingra on a Low-Salt Diet

- Roger Bannerman

Where does all our winter salt go?

Every winter we spread tons of salt on our roads, parking lots, sidewalks and driveways to clear ice and snow. Most de-icing salt is in the form of sodium chloride, which is potentially harmful and able to enter our ground and surface waters when over-applied. Snowmelt and spring rains wash winter salt residue into our storm sewers that drain directly to Lake Wingra. In fact, storm sewers are a major source of steadily increasing chloride concentrations in the lake. Another less obvious pathway is through spring flow when dissolved salt seeps into the shallow groundwater.

What have we learned so far?

The Friends of Lake Wingra (FOLW) are cooperating with the Water Action Volunteers (WAV), a program co-sponsored by UW-Extension and the Wisconsin Department of Natural Resources, to monitor five springs around Lake Wingra. Recent findings show that some of these springs have elevated chloride levels. More monitoring is needed to determine the significance of each spring with respect to seasonal impacts and long-term trends in lake chloride concentrations.

What do we hope to learn in the future?

Plans are to continue monitoring into next year. One objective is to compare the amount of chloride contributed by the springs relative to the storm sewers. To help answer additional questions, the number of sampling sites might also increase. One question involves determining an acceptable background concentration of chloride in the shallow groundwater. A second involves learning why there is a large variance in concentrations within closely-spaced springs. Do these springs have different sources of chloride? Finding answers will be important when it comes to applying effective control measures in the future.

See the back page of this newsletter for more photos. *For more information, email Roger Bannerman at rtbannerman@gmail.com.*

Primitive Pollination

- Rex Merrill

Lake Wingra is home to two water lily species that provide shade and cover for fish and other aquatic life. White water lily *(Nymphaea odorata)* has flowers 3 to 6 inches wide with spreading white petals, typically protected by four greenish sepals when in the bud. Yellow water lily or spatterdock *(Nuphar variegata)* has flowers arranged as globes less than 3 inches wide and covered by six yellow sepals. The actual petals are small and inconspicuous. Both Nymphaea and Nuphar flowers have numerous stamens that produce abundant pollen, and also a wide, flattened, stigmatic surface to receive the pollen.

The large, showy flowers of both water lily species attract a variety of pollinators. Beetles, native bees, and certain flies associate the flowers' strong odors with the promise of a meal of plentiful pollen. On the first day that a water lily flower opens, pollen grains easily stick to moist stigmatic surfaces and start to grow towards eggs in the plant's ovaries. Since the flowers do not produce pollen on the first day, only pollen from other flowers is likely to be successful in achieving fertilization. This reduces the chances of inbreeding. On subsequent days, the stigmatic surface dries up and the stamens do produce pollen. On these days, the flowers produce enough pollen to provide protein-rich food for many insect visitors. As the pollinators enjoy their feast, excess pollen covers their bodies and can be carried to other flowers.

Nymphaea odorata offers a nefarious twist to this story. On the first day of flowering, its flowers produce a pool of liquid in the cup formed by the bases of the petals. When the flowers close at night, some insects are caught in the pool and drown. These pollinators, at least from the flower's perspective, have already fulfilled their purpose and are no longer needed.

The water lily family *(Nyphaeaceae)* has one of the oldest fossil histories of all flowering plants, extending back to the Cretaceous Period when dinosaurs roamed the planet. Perhaps fruitful reproduction, aided by a tried-and-true pollination mechanism, has contributed to their staying power.

Spatterdock (above) and Nymphaea odorata (below): Yellow and white water lilies found in Lake Wingra. Photos: Jeanne Scherer.

The "Greening" of Commonwealth and Monroe Streets

- David Thompson

There is growing interest to redesign Monroe Street and Commonwealth Avenue to serve as models of green infrastructure in Madison. If fully implemented, these streets could gain state-of-the-art features that not only help infiltrate and filter dirty stormwater, but actually make a busy transportation corridor more inviting to neighbors, visitors and commuters.

"Green streets" incorporate special design features that reduce stormwater runoff, increase natural amenities (like rain gardens), and improve access for pedestrians and bicyclists. Additionally, they can create a new standard for a neighborhood, generating a sense of local pride while enhancing the function and aesthetics of our transportation corridors.

Streets are more than a means of getting from point A to point B. They are places where we spend time and experience life in the neighborhood. Now is the time to begin talking about how we can transform Commonwealth and Monroe into something truly unique and visionary. Below are some examples of green-infrastructure features that deserve consideration.

Curb extensions and rain gardens help infiltrate and clean stormwater runoff from the street. Rain gardens can be built right into the street terrace, or placed in other strategic locations where they can intercept street runoff. Street-side gardens comprised of native, deep-rooting wildflowers would beautify the area while protecting Lake Wingra by improving infiltration.

Underground injection wells provide places to store and infiltrate stormwater. Portland has 9,000 of these Underground Injection Controls, or UICs. They can be used in areas with space constraints, and are particularly effective during heavy storms when rain gardens and other stormwater structures become overwhelmed.

Erosion control measures are needed to keep mud from washing into the lake during construction. Every street reconstruction involves a tremendous amount of land disturbance and potential for sediment delivery. We expect the City and its contractors to implement rigorous erosion controls, and to avoid sediment spills like those from the 2010 resurfacing of Edgewood Avenue that pollute our surface waters.

Gabions (rock-filled wire baskets) are used as check dams to slow and divert muddy stormwater runoff on Gilmore Street during a 2010 road project.

Portland, Oregon's 12th Avenue "green street" with rain gardens and other features that infiltrate stormwater. Photo: City of Portland, Environmental Services.

Rain gardens incorporated into the street terrace (Adams Street, above) and the median (Barton Road, below). Notice the opening in the curb that allows for the entry of runoff water. Photo: David Thompson.

Friends of Lake Wingra, Inc.
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Upcoming Events

See our online calendar at www.lakewingra.org for more details on upcoming events.

FOLW Board Meetings are held on the every month at the Sequoia Public Library. Meetings run from 6:30 to 8:30 p.m. and are open to the public. We invite you to attend to learn what's going on around the Lake Wingra watershed, and to hear about our various project initiatives.

In addition, we are always looking for passionate individuals who may be interested in vying for a seat on the Board. Please consider joining us at one of our monthly meetings to learn more, or send us an email at info@lakewingra.org

Putting Lake Wingra on a Low-Salt Diet – *from page 6*

Left, a specific conductance reading is taken from a Lake Wingra spring with a conductivity meter. Specific conductance measures the ability of a water sample to pass an electrical current, which increases as dissolved chloride concentrations increase.

Right, a water sample is taken from a spring for chloride analysis.

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