

The Butterfly Effect

Spring 2017

Vol. 1, No. 1



Harnessing the spirit of Mendota Heights' residents, schools, organizations, places of worship, and businesses to create a greener community.



An Introduction to This Journal

In mathematical chaos theory, the Butterfly Effect is the concept that a very small difference in the initial state of a physical system can make a significant difference to that state at some later time. What can this theory offer our small community of Mendota Heights, with its population of just 11,200 people living within ten square miles? We think it offers a lot. The cumulative effort of individual actions can help improve the local ecosystem that comprises our lakes, streams, wetlands, yards, gardens, recreational areas, open spaces, roadsides, schools, and places of worship. Margaret Mead’s powerful idea, “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has,” informs the articles you will read in this journal.

In *The Butterfly Effect*, we will celebrate our community successes, examine small but impactful changes we can make to become better stewards of our local environment, and share our “green” stories. Even in Mendota Heights we aren’t immune from the many forces that challenge our local environment. Thankfully, there is much we can do—together. Block by block. Neighborhood by neighborhood. We look forward to rolling up our communal sleeves with you.

We hope you enjoy *The Butterfly Effect* and that you look forward to receiving this free publication in your inbox four times per year. You can sign up by visiting www.neighborhoodgreening.org/the-butterfly-effect.

The Meeting of the Waters: Stories From Our Community

Blending Learning and Community Service at Saint Thomas Academy

It is reassuring to know that if the health of Rogers Lake ever starts to deteriorate, Saint Thomas Academy (STA) science teacher Tony Kinzley and his AP environmental science students will be among the first to note the trend. Each fall when school starts and until the lake freezes, Kinzley's AP students pack up their testing equipment, hop on their bikes, and head down to Rogers Lake to monitor its water quality.

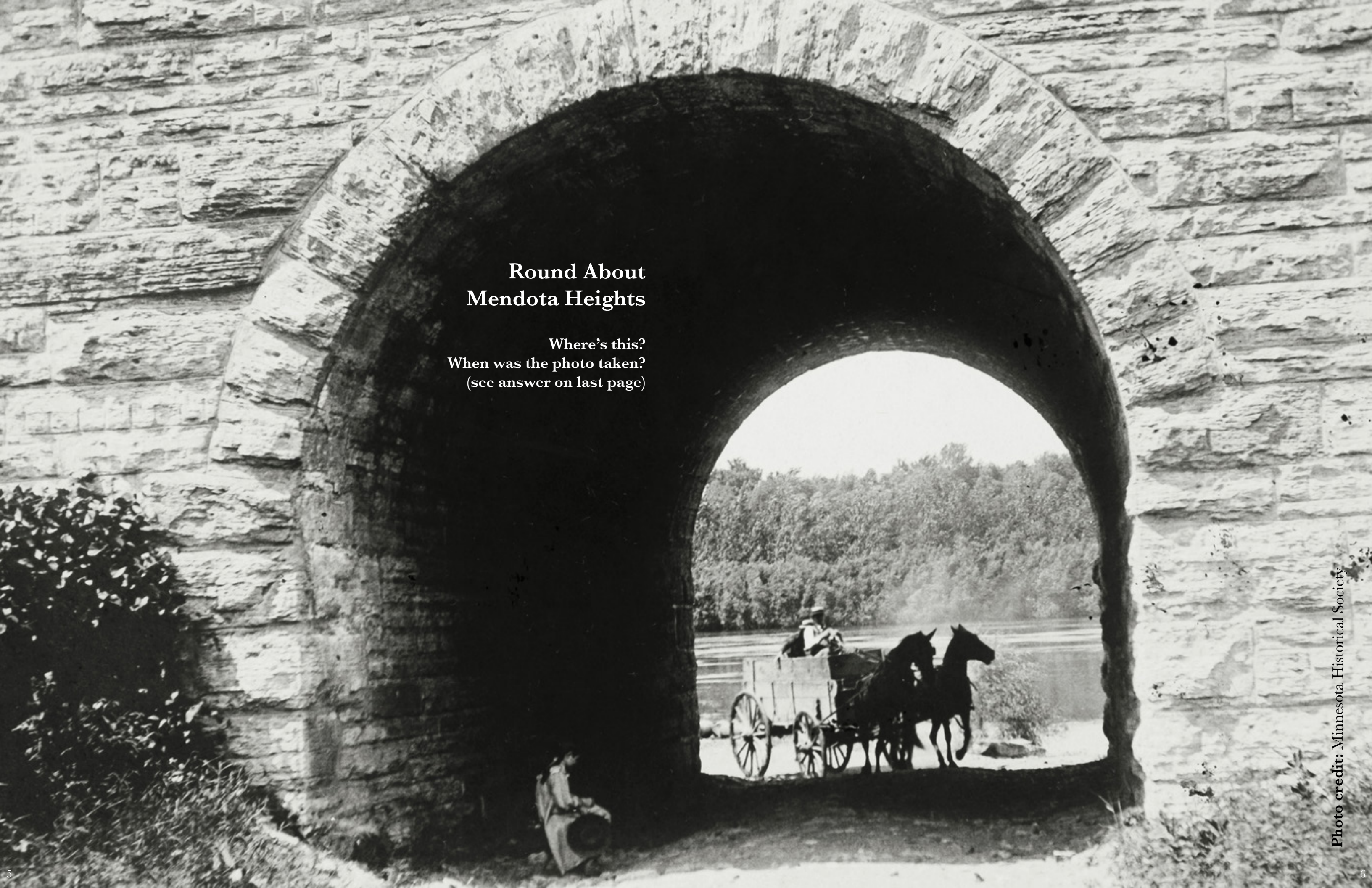
It takes a season's worth of sampling, testing, and analyses to draw accurate conclusions about the lake's health. Weather conditions change often, from windy to sunny to rainy, and that can impact test results. So, throughout the fall, Tony's AP students collect water samples from ten sites. Nine tests—ranging from analyses of the presence of nitrate, phosphate, and fecal coliform, to studying changes in lake temperature and dissolved oxygen—are conducted to assess the lake's overall health.

With a range of zero ("very bad") to 100 ("excellent"), the longitudinal data collected and analyzed by STA students ranks the lake in the low 80s in recent years. That gives the lake a solid "good" rating. Kinzley believes the lake's good health is due, in part, to several buffer zones on the lake's perimeter. These zones form a [vegetative filter strip](#) between roads, people's homes, and the lake, and they help prevent fertilizer, grass clippings, and other pollutants from reaching the shoreline.

By the end of the season, students in Kinzley's AP class have learned a great deal about water chemistry and the factors that affect water quality. As part of the course, students share their findings in a presentation to the city council. "These students participate in real, hands-on science. And they learn how to conduct testing with a high level of integrity," explains Kinzley, who has been leading the 25-year-old program since 1999. "Students are interested in comparing data and trends from year to year. It's a pretty cool experience."

Right: Rogers Lake on a rainy day.





Round About Mendota Heights

Where's this?
When was the photo taken?
(see answer on last page)



WANTED: ECOSYSTEM OUTLAW

Featured Outlaw: Common Burdock

Common burdock is a mean one, folks! It loves to shove other plants out of its way and take over. At this very moment, the seed-laden cockleburs of this plant are lying in wait to catch a tangled ride on your dog's fur. This wily weed is a stubborn, invasive biennial that spreads rapidly. It has been spotted roaming around Mendota Heights more and more in recent years. Once it has found a home to settle into (disturbed soils, fence lines, sunny open areas, roadsides, your yard), it is hard to eradicate. The size and shape of the leaves of this sneaky weed look suspiciously like rhubarb. But don't be fooled (and don't make a pie out of its stalks, you'll regret it). Unlike the delectable rhubarb, the underside of burdock's leaves are silver-white and covered with fine hairs.

If you spot this noxious, non-native plant loitering around your yard, keep it mowed, and never let it get to its second-year flowering stage. If you don't mow this outlaw, it will be the visitor you have a hard time getting rid of: a single mature plant can produce up to 16,000 seeds that can survive in soil for up to five years. You'll need to hitch your horse to the second-year burdock plants in your yard to yank them out by their tap roots, so best to keep them mowed or pulled (be sure to wear gloves). [Click here](#) to learn more about how to kick this nasty dude out of town.



Top left: First spring sprouts. **Bottom left:** Common burdock plant in its second season, getting ready to produce thousands of seeds. **Photo credit:** Katy Chayka, Minnesota Wildflowers.



“Because so many animals depend partially or entirely on insect protein for food, a land without insects is a land without most forms of higher life.”

—Douglas Tallamy, Ph.D.

Plants are to blame for making insects such fussy eaters. Like any living thing, plants prefer not to be eaten. Over thousands, perhaps millions, of years, plants have developed chemical defenses that, over evolutionary time, keep most plants from being eaten by most insects. However, insect herbivores need to eat plants to survive. So, by living side-by-side, or co-evolving, with native plants, certain insects have developed certain adaptations that have allowed them to “crack the chemical code” of certain plants. Most insects cannot digest the recipe of chemicals that makes up the milkweed. But, through co-evolution, the monarch has figured it out.

By understanding that what we plant matters, we can take a fresh look at our own yards.

What if we considered sharing more of our yards with wildlife? Do our local landscapes adequately nourish our local beneficial insects? Given the foundation of trees, shrubs, grasses, and flowers already growing in our landscapes, what could each of us do to create a richer, more biodiverse foodweb in our Mendota Heights yards? Some of the answers lie in making more robust use of native plants in our landscapes.

Future editions of this column will explore how suburban landscapes are becoming “last refuges” for wildlife and the important role our own landscapes, no matter how large or small, play in building biodiversity. Articles will explore how to attract more pollinators, birds, insects, and other wildlife to our yards; why, despite their seeming abundance, many insect species are in decline; how to create “pollinator corridors”; the difference between beneficial insects and insect pests; how to garden for clean water; and the reason why we need more native trees, shrubs, flowers, and grasses in our Mendota Heights yards—without sacrificing the non-native plants that we love and enjoy.

What We Plant Matters: Reimagining Our Yards as a Foodweb

After World War II, suburbs sprang up across America. These new landscapes often included Chinese and European ornamental flowers, trees, and shrubs that were (and still are) available at local garden centers. Unfortunately, because these plants came from afar, they contributed very little to local foodwebs. [The backbone of all foodwebs is native plants.](#) Think of a foodweb in terms of a plant-eating caterpillar, which is eaten by an insect-eating bird that feeds caterpillars to its young, which may be eaten by a meat-eating owl. Our human survival depends on functioning foodwebs.

Native plants are the backbone of a foodweb; insects are its lifeblood.

As stated by Douglas Tallamy in *Bringing Nature Home*, “Because so many animals depend partially or entirely on insect protein for food, a land without insects is a land without most forms of higher life.” Or, stated more forcefully by E.O. Wilson, University Research Professor Emeritus at Harvard University, “If insects were to vanish, the environment would collapse into chaos.”

Insects, which are crucial in our foodwebs, can be picky eaters.

Like the child who eats only macaroni and cheese and chicken fingers, many insects stick to a limited food menu. The classic example is the monarch/milkweed relationship. Monarch butterflies lay their eggs exclusively on milkweed plants; monarch caterpillars eat only milkweed. If there isn’t any milkweed, a monarch caterpillar will not crawl away to eat marigolds, geraniums, or oak leaves.

Above: A red admiral butterfly takes a sip of nectar from a purple coneflower (*Echinacea purpurea*). This butterfly prefers the sap flows of trees but will also visit flowers. The red admiral caterpillar lays its eggs on plants that are a member of the nettle family.



Above: The monarch caterpillar only eats plants from the milkweed family. Fifteen milkweed species are native to Minnesota.

Going Native: The Squash Bee

Did you know that Minnesota is home to over 400 species of native bees? One native, the squash bee, has an especially symbiotic relationship with plants in the squash family. Your pesticide-free cucumbers, pumpkins, watermelons, squash, and cantaloupe will be bigger and tastier if visited by this bee. Squash bees often mate, and males shelter overnight, inside this plant's blossom. Look for the squash bee in your veggie garden in the morning when foraging activity is at its peak. [Learn more about native bees and how to attract them to your garden.](#)





Butterflies, Flowers, and Bees ... Oh My!

Pictured below sipping nectar from wild bergamot, the [great spangled fritillary](#) butterfly is a welcome visitor to our gardens. Great spangled fritillary caterpillars hatch in the fall and immediately go dormant without eating. When they awaken hungry in the spring, these offspring search for violets to eat. Without [violets, the great spangled fritillary caterpillar will not survive](#). Some consider violets a “lawn weed,” but they are actually an important larval food source for many fritillary butterfly species, as well as a great early season nectar plant for bees and other pollinators. Be sure to check out the next edition of *The Butterfly Effect* to learn how to turn your yard into a butterfly haven.

Left: A bumble bee on Canadian white violet (*Viola canadensis*), a host plant for the great spangled fritillary.

Below: Great spangled fritillary on wild bergamot (*Monarda fistulosa*).

Photo credits: Left: Vicki Bonk, Below: Dave Crawford





Events, Classes & Volunteer Opportunities

Burnsville Native Plant Market

Saturday, May 20, 9 a.m. – Noon

Parking lot across from Burnsville City Hall
952.895.4545

Landscape Revival Native Plant Expo & Market

Saturday, June 3, 9 a.m. – 3 p.m.

Community Pavilion at Roseville Cub Foods, 1201 Larpenteur Avenue West

Landscaping for Clean Water Workshop

Sponsored by Dakota County Soil & Water Conservation District

Tuesday, June 6, 6:15 p.m.

Farmington Library, 508 3rd Street
651.480.7777

Mendota Heights Parks Celebration

Among many events, Mendota Heights area master gardeners and the Pilot Knob Preservation Association will be hosting information booths. Celebration also includes a 5K run/walk that begins at 9 a.m. at Market Square Park.

Saturday, June 3, 11:00 a.m. – 2:00 p.m.

Mendakota Park

Monarch Larva Monitoring Project

Citizen Science Training, Sponsored by the University of Minnesota Extension Program

Saturday, June 10, 8:30 a.m. – 4:30 p.m.

(You do NOT need to be a Minnesota Master Naturalist to register for this program)

2003 Upper Buford Circle, U of MN St. Paul Campus
612.625.8304

Wild Ones Twin Cities 2017 Native Plant Sale

Pollinator garden flats and individual plants. Order deadline is May 16. Pick-up date is May 21.

Left: The striking swamp milkweed leaf beetle hangs out on its favorite food source, the swamp milkweed.
Photo credit: Vicki Bonk

“The best time to plant a tree was 20 years ago. The second best time is now.”
—Chinese Proverb



Did You Enjoy This Edition of *The Butterfly Effect*?

Don't miss the next journal! Sign up to receive your free e-version of *The Butterfly Effect* at www.neighborhoodgreening.org/the-butterfly-effect.

Do you have a story or idea to share about making Mendota Heights a greener, more environmentally sustainable community? Please send your ideas to Green@neighborhoodgreening.org.

The Butterfly Effect is published four times per year by Neighborhood Greening, a 501(c)(3) non-profit organization dedicated to community environmental education and stewardship. Block by block. Neighborhood by neighborhood.

Explore our website and sign up to receive *The Butterfly Effect* at www.neighborhoodgreening.org.

Round About Mendota Heights



“Trestle Bridge at Mendota, 1890.”

You can still find this trestle bridge on the river flats in Mendota, a short distance down the road behind the Sibley House. Many enjoy hiking and biking on the trails beyond this tunnel. The flats are often muddy, however, so wear the right footwear.

Be sure to look for eagles!

Thank You to Our Sponsors



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and this issue’s contributors:

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