

GARDEN PONDS FOR POSTAGE STAMP YARDS

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I have kept small ponds for native and tropical fishes in my tiny urban yard (Figure 1) since the early 1980s. However, I would have never come up with the idea if a NANFA member had not shown me what a wonderful alternative both ponds and wild-flower gardens made to boring, grass lawns, and how easy they were to make and maintain (Schmidt 1986).

POND DESIGNS AND DEVIATIONS

I started very simply with a circular wading pool for children. I did very little landscaping, using only a few rocks and aquatic plants as cover for the fish. Being a financially strapped student, water pumps were a little pricey for my budget so I used an air

pump and large air stone. The final touch was planting a wild-flower mix around the pond (Figure 2).

One aspect of keeping ponds I always looked forward to is “harvesting” the fish in the early fall when I drain the ponds for the winter. Some fish come out of the water with colors I never see in the aquarium. However, very early on I learned the greatly anticipated catch was only a fraction of the fish I stocked in the spring. Without filters, the ponds had a very limited carrying capacity. I greatly improved the season’s catch using undergravel filters and powerheads in shallow plant trays (Figure 3). This system provided an added bonus for the pond’s residents which schooled in the powerhead’s artificial current. However, about



Figure 1. March 11, 2016 aerial photo of author’s front and back yard ponds (arrows). (Google Earth photo)



Figure 3. Plant tray (center right) with undergravel filter and powerhead.



Figure 2. My first pond (Summer 1983) four weeks from bare soil.



Figure 4. Kidney-shaped preformed pond (Summer 1997).

Photos by the author unless otherwise indicated.

halfway through the summer the flow would be reduced to a trickle. The gravel filter medium had been thoroughly rinsed in the spring, but later felt like caprock embedded with fish waste and debris (i.e., seeds from ash, cottonwood, and maple trees). In an aquarium, I could use a siphon tube with a shotgun attachment to vacuum the gravel, but the plant trays were below ground level. It was impossible to create a siphon without a self-priming pump. The heavy trays had to be removed to rinse the gravel by hand. This proved to be a much greater level of maintenance than I had bargained for.

Luckily, a less intensive maintenance option was found thanks to NANFA member and Swiss Tropicals owner Stephan Tanner. He carries the Lifegard® pond filters and pumps. Besides filtration, these systems also include an ultraviolet sterilizer. These are not cheap but are superior filters and almost hassle-free. Every year, neighbors walking by the yard often compliment the ponds, but never fail to assume they require lots of work. I reply, “Only one day in the spring and another in the fall. In between, I add a little water and feed the fish.”

Through the years, I have evolved and de-evolved in pond designs. It didn’t take very long to move on from my 1983 infancy

design to somewhat more natural preformed ponds (Figure 4). However, I have always “pondered” bigger, better, and way outside-the-box ideas to try.

The most ambitious and creative design I ever attempted was a 25-foot stream connecting two ponds (Figure 5). I’ve always have been fascinated with flowing water. The sound of a babbling forest brook or rapids-filled river has always been extremely soothing to me. Initially, I achieved my objectives beyond all expectations. Some fish in the lower pond could also “scale” the tiny falls at the lip to reside in the stream.

I really cherished the aesthetic touch the stream added to the back yard. Unfortunately, problems arose I could not solve. An invasive algae appeared every year I had the stream. It would begin as beautiful bright green strands that also provided cover for fish. However, it grew and grew choking the stream which caused it to overflow and drained the ponds. The low water level risked damaging the water pump. I tried manually removing the algae by pulling six- to eight-foot long strands from the stream. This would work for about a week before the stream overflowed again. I added several Central Stonerollers *Campostoma anomalum* to the stream hoping these grazers could keep it in check.



Figure 5. Lower pond, stream, and upper pond (under well spicket).

Figure 6. Pond liner designs: back and front yards.

No luck. Then, in the fall the leaves dropped off the trees and again dammed the stream. Sadly, the stream had to go.

Pond liners allow much more creativity than preformed shapes. I went from a stream to stair-stepped waterfalls and both ponds were unique in design (Figure 6). I was happily hooked on liners for about a decade, but then they began to leak, and I could not repair them. I put off the inevitable until the ponds needed refilling every two to three days. With great reluctance I accepted the liners had to be retired, but not certain what would be a superior replacement.

I hope I've learned enough from the shortcomings of my earlier designs to finally have one that will outlast all of them and me. I've returned to preformed ponds and have made waterfalls out of concrete linking two ponds together. The waterfalls may not have the drop of the earlier design, but I still have a mesmerizing babbling brook that cascades over limestone ledges (Figure 7).

FISH

The ponds are full of fish from late May to mid-September and mostly consist of Mexican goodeids. However, their natural camouflage hampers fish watching except when schooling or feeding near the surface. I do like to see some eye-catching life and stock about a dozen rosy-reds (Figure 8), which is a color morph of the Fathead Minnow *Pimephales promelas*. Goldfish *Carassius auratus* are even more visible, but grow rapidly and soon turn to grazing cows uprooting aquatic plants which are not only aesthetically

pleasing, but are also used by the other fish for cover. Water clarity then degrades creating a eutrophic pea-green eyesore. I have also had success keeping several species of minnows (e.g. Spotfin Shiners, *Cyprinella spiloptera*, Banded Killifish *Fundulus diaphanus*, Flagfish *Jordanelia floridae*, and Iowa Darters *Etheostoma exile*. Almost all spawn in the ponds but come fall only the adults are left. Fry are often observed many times over the summer but soon disappear. Goodeids are an exception because of the whale-like calves they prolifically produce. Every fall the burgeoning surplus must be given away or sold in fish auctions.

WILDLIFE

Living in a large city there isn't a great diversity of species, but what has stopped by, some just once, has amazed me. Birds, by far, make up the bulk of visitors. Every spring, many species of warblers and native sparrows pass through. I can identify some, but others I can only mumble to myself, "that one's different." Wild Turkeys are now common everywhere in Minnesota except in my postage stamp residential neighborhood. I have only caught a glimpse of one eating some corn and drinking from the pond never to return. Mallards have provided the most entertainment returning every spring. Drakes covet the microscopic potholes as display ponds. They soar in low at full speed then brake for a fraction of second pulling up four or five feet directly over the pond and drop like rocks splashing water everywhere. Drakes perform mock combat as hens watch from around the pond. The winner gets the girl, but the drake makes it look more like premeditated drowning. Twice, impatient Mallards arrived. The first time happened when I had just finished digging and lining a hole for a new pond in the front yard. Build it and they will come! The second time was a pair arriving on April Fool's Day to an empty pond. The joke was on me. This was about a week before I usually set up the ponds, but I made an exception that year. The American Goldfinch is another regular visitor that hangs around all year and frequently bathes in the pond's waterfalls. The nuptial yellow males in the spring are a sight to behold! Small flocks of American Robins stop in the fall and spring to drink from the pond and take a raucous dip in the falls. During the fall and early winter Coopers Hawks swoop down out of nowhere to pick off songbirds and at least one rabbit.

Grey Squirrels abound performing acrobatics in the crowns of trees and shrubs crisscrossing back and forth to gorge themselves at bird feeders. There is an occasional treat when a black phase squirrel shows up, or rarer yet, an albino. One very wet spring, I heard a Chorus Frog calling from the front pond. I never found



Figure 7. Final design? Preformed ponds and concrete waterfalls (back and front yards).



Figure 8. Rosy-red Fathead Minnow.

it, but the sound of a fingernail strummed along the teeth of a comb can't be confused with anything else. I have no idea how it got there because the nearest wetland is a mile away. I must plead guilty to bringing in some wildlife. Every year, I catch about a half-dozen Green Frog tadpoles for each pond. They soon morph into frogs and settle in until fall. Several species of butterflies sip nectar from the yard's flowers. Monarchs lay eggs on four species of milkweed growing in the yard and my wife (and retired school teacher) Mary shows neighborhood children how to raise the caterpillars and release the butterflies (Figure 9).

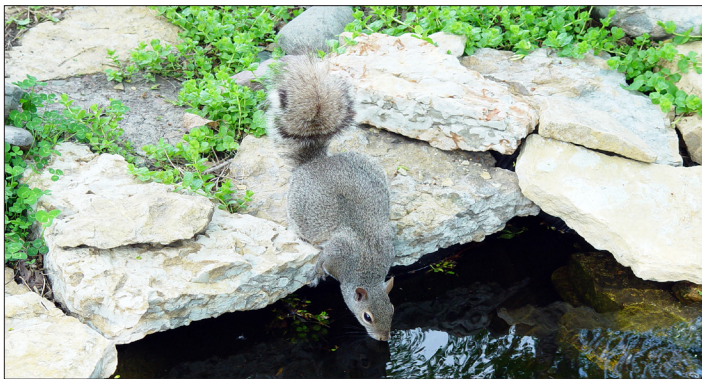
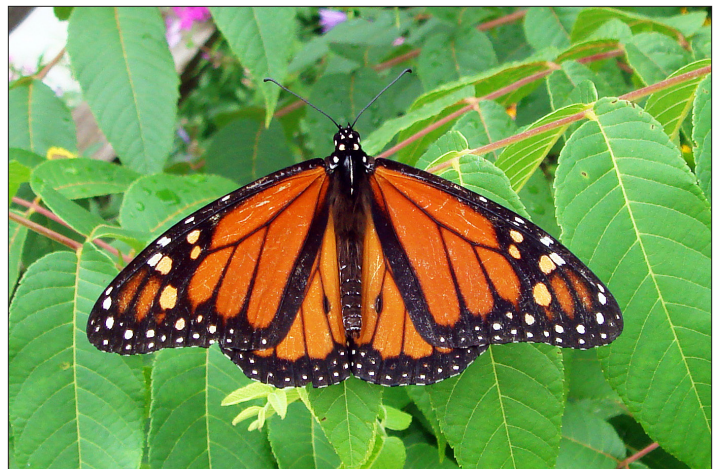
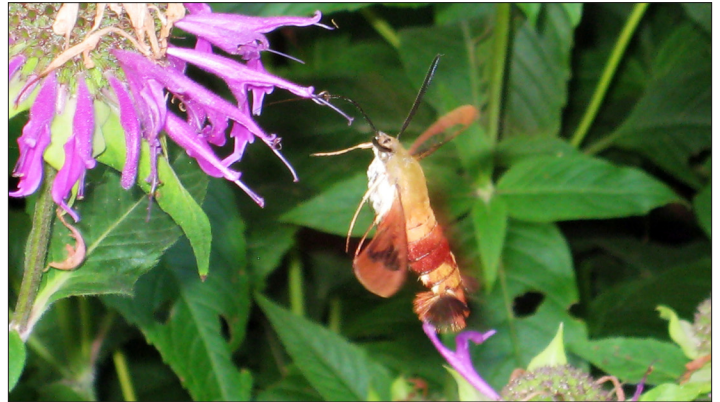


Figure 9. Wildlife. Left column, from top: returning Mallard squatters in spring, a thirsty Grey Squirrel, a Green Frog. Right column, from top: a pair of American Goldfinches bathing in unfinished falls, a Hummingbird Sphinx Moth sipping nectar, the one and only Wild Turkey, and a Monarch Butterfly.

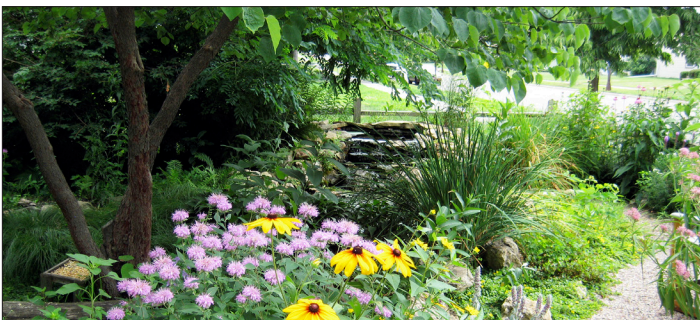


Figure 10. Changing seasons. Left column, from top: Mary stocking books in her Little Free Library and May through June flowers. Right column, from top: July flowers and welcomed shade for people and pets.



red standing out on the artist's canvass. With the onset of colder temperatures, the fish are removed in September, but I keep the ponds running until Halloween or at the first sign of ice. I learned my lesson the first time I had to chop through two inches of ice to rescue my water pumps (Figure 10).

CARE AND MAINTENANCE

I can easily set up the ponds in a single day, but enjoy the spring ritual much more when I take two. This entails testing the filters and pumps, attaching and hiding hoses, filling ponds, and tweaking the waterfall's flow. Fish and plants are added after the last frost. I got fooled once by a very warm March and most of the fish didn't make it through a final cold snap. I top off the ponds about twice a month and feed fish either frozen or flake food every other day. Most of the adult fish are removed in early fall using minnow traps. I'm dumbfounded why the traps seem to work much better baitless. However, the ponds must be completely drained to harvest the crop of young-of-year goodeids. Ponds are then refilled, and I keep the waterfalls running for the birds and squirrels. I never look forward to tearing down the ponds for the season, but these are too small and shallow to keep through the winter. All the pumps and filters are cleaned and dried for winter storage. There is nothing special done to "winterize" the ponds. Sometimes they are buried in snow or rain and/or snowmelt fill them and freeze top to bottom.

For me, the welcomed reward of having a garden of flowers and ponds has been no longer having to mow the lawn once a week from spring into fall. We also only rake the sidewalks in the fall and wait until spring to rake the gardens before the spring ephemeral flowers emerge. The leaves have partially decomposed and are a fraction of the fall volume which translates into fewer bags to fill and trips to the city's compost yard.



Figure 11. Landscape and garden awards.

CHANGING SEASONS

One wonderful benefit of living in a temperate zone is experiencing the change in seasons. I have become even more aware of this annual show from my tiny refuge of trees, shrubs, flowers, and ponds. My favorite season is spring when ephemeral flowers of many colors and shapes arise from the barren ground for regrettably all too short a time. Leafless maple trees also briefly wear their delicate flowers. My two favorite shrubs are an Eastern Redbud and Flowering Crabapple. Before their leaves unfurl both crowns are ablaze in pink. Around the pond's edge, clumps of iris in many eye-catching colors and hues regally display their crowns of flowers.

Summer comes in a very close second with prairie flowers such as Dark-eyed Susan, Purple Coneflower, Butterfly Weed, Blazing Star, and Harebells. The crowns of the trees and shrubs provide refreshing shade even on the hottest days. The ponds are also going wild with water lilies and dense stands of wild celery. School is out and Mary's Little Free Library, which is open all year, attracts even more children and families who also take time to enjoy the flowers.

Fall has few wildflowers, but light-blue asters fill the void and the show finishes with the Witch Hazel's yellow spirals that blossom after its leaves have fallen. I wish we had more fall colors from our trees and shrubs, but yellow prevails with a splotch or two of

ATTITUDES AND AWARDS

When we first moved here in the early 1990s, our neighbors were mostly retired and kept meticulously manicured lawns. Mary checked the city ordinances before undertaking our subversive plot of converting our lawn to flower gardens. They were generally reasonable and amenable to pursuing our goal. However, twice in the first few years, we received form letters from the city that a complaint had been received and we were being investigated for ordinance violations. If we were found in violation and did not resolve the issues, city crews would be dispatched, and we would be billed for their services to bring us into compliance. A quick check of the ordinances confirmed we were not in violation, but the first time we had concern. Nevertheless, both times we were informed again by form letters that city inspectors found our yard in compliance. Since then, no formal complaints and countless walkers and drivers stop to say, "Love your yard!" Mary received \$1000.00 as a grant award from the Ramsey-Washington Watershed District to landscape the boulevards following environmental guidelines. Anonymous visitors have also nominated our yard for awards and we have won two from the Landscape Ecology Awards Program (LEAP) and Blooming Saint Paul (Figure 11).

Literature Cited

- Schmidt, K. 1986. Backyard Ponds. *American Currents* 12(5): 6–7.
Available URL: <http://www.nanfa.org/ac/backyard-ponds.pdf>.
Accessed on December 27, 2018.