The Vignette Garden

Glenn & Mina Davidson, Mt. Morris, MI

Photos by H. Nash

Creating garden scenes with plants, arts, and crafts is an American garden trend for the new millennium.

We Americans are a creative, crafting group. We decorate our homes with hand-crafted items, often made by ourselves, but always reflecting our interests and personalities. As we claim our backyards as an extension of our homes, turning these spaces into outdoor living rooms, it is only natural that we carry our decorating efforts outside. Bringing our arts and crafts into the garden lends itself to creating special surprises, scenes within a scene, and delightful details in our gardens. The Davidsons' garden in Mt. Morris, Michigan, is a treasure-trove of ideas for this new garden trend. And, yes, they have done it all themselves... with a lot of love.

An arbor built of boughs and garnished with dried grape vines, dried flowers, wooden bird sculptures, and a gourd birdhouse leads to a shady section of the garden.

A birdhouse post becomes a sign directory to the garden's main entry.

A wrought iron outdoor table gives the opportunity to arrange plants and craft items.

The Vignette Garden goes beyond a mere artful collection of plants. Anywhere you focus within this scene, you find charm and surprise.

Volcanic rock, full of natural holes and crevices is perfect for planting succulent plant specimens.

Baskets, birdhouses, sculptures, and even artfully arranged terra cotta pots create a scene.

Even the 'dead' areas of the garden are decorated.

The outhouse door is left open so Gramps can enjoy the garden vignettes.

Aquatic plants create lush interest in pots.

Tucked behind the Mill Pond is a perfect perch for preening birds. Clematis lights it up in season.

Outside the garden gate, a blue bicycle only hints at the delights inside.

A dead tree provides perching for birds and a support for climbing clematis.

A barrel and crafty chicken pose another option to plants in a shady site.

The *Monarda* and other bird and butterfly-attractive plants invite wildlife to the garden. A concrete bird bath extends the invitation. With the garden divided into 'rooms,' a sign directs the visitor down 'Main Street' and 'Clematis Blvd.'

A bridge crossing a dry creek bed is accented with variegated grassy foliage.

A shady nook beneath the pines offers cooling shade.

Doing it Right!

by George B. Davis

‘Doing it right’ means building a pond that is safe for your fish and plants....and that is easy for you to clean and maintain.

How you build your pond determines the quality of life you create for your fish. *Photo by H. Nash*

Ah, the tranquility of a backyard pond. Nothing else is quite like it: relaxing by your pond talking about anything other than the stresses in your life... watching your fish magically dance their way through the lily pads and rocks in the pond... enjoying the fragrant blooms of a hybrid lily and the majesty of your lotus...and a waterfall transporting you to another world.

Okay, dream time’s over. It’s Saturday afternoon — time to clean the filter because the waterfall is operating at half capacity. Your pump (the second one is three years) is struggling to draw water through the feces-filled foam you call a filter. It’s time for your once to twice a week ritual of sticking your hand into the pond to pull the bacteria-infested foam-plug out so it doesn’t clog as often. While this might lessen the frequency with which you deal with your pump, I’m sure there are a couple of inches of oxygen-consuming bacteria and parasite-hosting algae bloom feeding the sludge accumulating in the bottom of your pond.

I suppose you could wait until spring to climb in there and do your annual pond cleaning. You know, the one where you climb in the pond while the fish are still waking up from the rigors of a three-month dormancy and are their weakest and most prone to disease. You drain all of the water out of the pond and, after several attempts, finally net your fish, and then throw them into a crude holding tank. You then slip through several inches of decomposing sludge that smells like an outhouse. For you, this job ranks right up there with a root canal. For your fish, this is the equivalent of riding the world’s fastest, scariest, most violent roller coaster in the world, while having the flu. It’s a testament to their ability to survive 100 million years. They may live through this ordeal, but they are neither happy nor very well prepared for the challenges that springtime poses to a fish.

Spring cleaning doesn’t have to a major trauma to your fish.
Photo by H. Nash

Sorry if I was a little dramatic. However, I’m sure many of you can relate in some capacity to this depiction. Many pond owners I have met seem to feel that every spring part of pond ownership is draining and cleaning the pond. I have four words for you: Bottom Drain & External Pump.

I strongly encourage the use of a drain in the bottom of a pond, no matter the pond size. This is plumbed like a swimming pool with a PVC line running from the drain to a pump that is out of the pond. If a pond is equipped with those components when it is built, under normal circumstances, you will not have to drain the pond in the spring to clean it. There will be very little, if any, accumulation of waste in the bottom. We clean ponds as part of our business. With ponds with bottom drains, we repot plants, clean filters, do a 25% water change, net out some leaves, and go to the next pond. A pond without a drain is a much more involved process!

Too often, pond installers, including the do-it-yourselfer, fail to consider the maintenance of the pond that will follow the installation in the ensuing years. The more work a pond is to maintain, the less likely a full maintenance routine will be followed faithfully. This can mean a dirty and smelly pond that is unpleasant for you... and a pond that is potentially deadly for your fish.

A pond designed for low maintenance has a few key elements in its design:

1. A floor that slopes 1-1 ½ inches per foot of run. If you build a pond 12 feet long, the floor should be 12-18 inches deeper at one

By installing your pond edging on a built-in, shallow ledge, the water level can be maintained aesthetically. *Photo by H. Nash*

the walls caving in. Sloping the side walls about 20 degrees, maybe more if you have soft soil helps prevent cave-ins. Also, choose a location that is not likely to have surface water running towards the pond that can weaken the sidewalls and increase the chances for collapse. (Remember the option of French drains to redirect both surface and ground water, if necessary.)

3. Do not get too wild with the perimeter contours. You can give your pond's shape a little character, but avoid narrow extended arms and cove constructions. These areas develop stagnant water. Unless you use circulation jets, debris accumulates in these areas. Even bottom drains may be unable to pull wastes from isolated pockets and corners.

end compared to the other. The deep end will be opposite the waterfall/stream for the greatest turnover of water.

2. The sidewalls are *not* straight up and down. Excavated holes like ponds are prone to

4. Make the deep end of your pond at least 30 to 34 inches deep. Your fish will be much happier and healthier in deeper water. During quick temperature changes, shallow water changes temperature more quickly than deeper water. This is stressful to fish. When it's

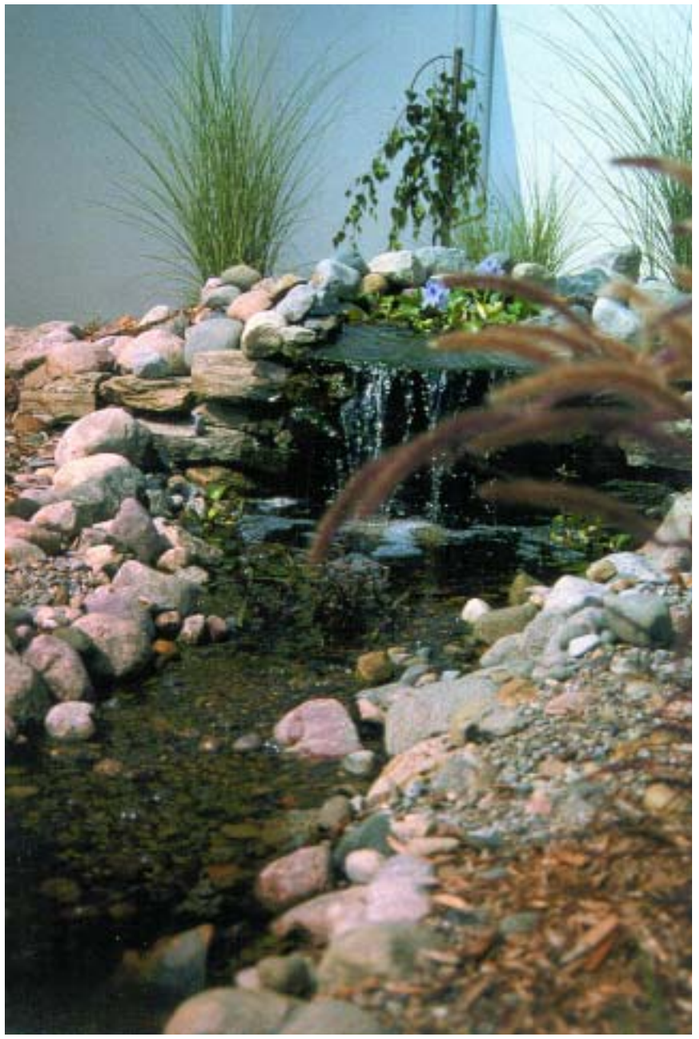
Gravel on the pond bottom looks so natural....

...but in even one year, muck accumulates among the rocks and creates deadly, toxic conditions for your fish — besides an unpleasant, smelly cleaning chore for you. *Photos by George Davis*

extremely hot or cold, deeper water provides more insulation. Also, more depth gives you more pond volume which can help accommodate the often inevitable heavy fish load of many pond owners. Finally, if your pond is in the sun, the added depth buffers some of the sun's penetrating UV rays.

5. To conceal your liner, make a three-inch deep and 7-12-inch wide shelf all the way around the pond. The perimeter of your pond must be as level as possible. The shallow shelf gives you a buffer zone if you're off a little on your levelness or if some settling occurs. Lay one course of rock the same thickness as the shelf you've created. Focus on how well the front edge of each rock meets the one next to it. Then, lay a second course of rock with half lying on ground level and half resting on the first course of rock. This gives you a nice tiered effect and allows water to partially submerge the first course and make the pond's edge look very natural. Use large perimeter stones on the second course for the greatest stability and safety. Use broken pieces as shims to firm up the sides of teetering or unstable rocks.

6. Install a bottom drain at the lowest end of the pond. Pair it with an external pump. This is the single most important element in a low maintenance pond. By placing a drain in the bottom of the pond, you can pass debris and solids out to areas that are much easier to access, such as leaf traps and external filters. There are many drains to choose from. Some involve penetrating the liner and running your line under the pond, and some allow you to avoid cutting the liner by setting them on the pond bottom. For most do-it-yourselfers, I recommend the Tetra 2" vacuum drain designed by Bob Spindola. It does not require cutting a hole in your liner and can be retrofitted into existing ponds easily. The drain itself is connected to a PVC pipe or tube. Flexible PVC from the swimming



Gravel-lined creeks benefit from flowing water that eases buildup while providing oxygenated water to sludge-eating bacteria. *Photo by H. Nash*

pool industry is very handy and easily routed to the pump set up outside the pond. It is usually paired with a device called a leaf trap. This catches large debris like leaves, helicopters, string algae, small rocks, etc. to protect the pump. It is very easy to access and clean out. The rest of the waste in the pond will pass through most external pumps and go to your external filter. Having these two components makes a dramatic difference in how clean and healthy your pond remains and in how easy your routine maintenance will be.

7. *Do not put gravel or rock in the bottom of your pond.* The goal of both a low maintenance and a healthy pond is to design and plumb it for efficient removal of pond wastes. When you add rocks to the pond bottom, you create thousands of little voids for accumulations of fish feces, uneaten fish food, decaying aquatic plant foliage, tree leaves, and other organic debris. Within one season you will have substantial anaerobic bacteria growing in the bottom of the rocks. In two to four years you will begin to have problems with water quality and noxious odors. It doesn't take much more for the conditions to be right for fish kills.

There is a misguided belief that all this rock helps provide biological filtration and an ecological balance. The fact is initially it does. However, as the sludge begins to accumulate down in between all that rock, any beneficial bacteria that may be growing is suffocated. Remember, beneficial bacteria that process organic matter is a form of *Bacillus subtilis*, an aerobic bacteria. It must have oxygen to work, and there is no oxygen within an accumulation of matter. Instead, as sludge accumulates, anaerobic bacteria go to work. Their by-product is the deadly toxic hydrogen sulfide — the gas that makes the pond take on a bad odor, and the same gas that quickly kills your fish. These unhealthy, anaerobic conditions also harbor disease-bearing bacteria and parasites that can attack your fish. If you're still uncertain, read the first chapter of any good book on water quality as it pertains to aquatic life.

8. Use an external filter that is properly sized. The rule of thumb, if there is one, is 3-8 percent of the pond's volume should be dedicated to filter space. (Some professionals even recommend as much as 10 to 20 percent of the pond's volume being involved in the filtration system.) A 1000 gallon pond should have at least a 30-80 gallon filter. Try to involve a good-sized settling area where the largest solids can settle to the bottom before they go into the mechanical section of the filter. Include at least a half-inch drain outlet so you can flush the filter and solids out. Use foam or brushes that are easy enough to clean yet dense enough to trap the solids. This usually means using more than one type of media, such as brushes or coarse foam initially and then progressively finer foam.

The name of the game in bio-media is providing as much of surface area for good bacteria to grow on in the least amount of cubic feet. Plastic media like bio-balls, bio-ribbon, or polypropylene beads are very good at this. However, bacteria seems to grow a bit slower on plastic media. Rock grows bacteria more quickly, has innate buffering characteristics, and is cheaper. The downside of rock media is that it doesn't have the surface area of some of the plastic media, it is prone to channeling, and it is difficult to clean. A good one or two container filter paired with good intake equipment like a bottom drain/external pump combination is more than appropriate. A well-designed bog is icing on the cake.

The best advice I can give is to have realistic expectations for your pond's size and equipment. If you have a small 200-gallon pond with a simple in-pond pump and filter combination, enjoy the sound of the fountain or waterfall, your water plants, and a few small fish. Trying to stock such a small pond with 15-25 fish (or worse yet, with Koi!), feeding them excessively, and never pruning or thinning your plants usually lead to health and maintenance problems. Don't let fish discourage you from having a pond. They can be quite manageable as long as you don't get too carried away with their quantity and the amount of food you feed them. 'Doing it right' means building a beautiful pond that is safe for your fish and plants....and that is easy for you to clean and maintain.

Water Garden Skimmer — Do I Need One?

by Linda Siler
Photos by H. Nash

First decide if you need a skimmer in your water garden. If you do, plan to tend theproblems it naturally creates.

Heavily planted water gardens may not benefit from a skimmer system at all. Surface plants create an obstacle course that prevents debris from reaching the skimmer, and you might 'lose' free-floating plants to the skimmer.

Gone are the days when building a pond involved only digging a hole, lining it, and edging it with rocks. Today, a plethora of accessories confront pond owners. One of these is the skimmer. In the Koi pond, the skimmer takes the form of an in-pond basket, much like those found in swimming pools. In the water garden, the most popular skimmer involves a chamber installed immediately adjacent to the pond, at the bottom of which is a pump pulling the pond's surface water into the chamber where a mesh bag collects surface debris. The water is then directed to a waterfall return into the pond. This type of skimmer was originally developed for pond/stream/waterfall features that focused on moving water rather than on the growing of aquatic plants. Unfortunately, their marketing for water gardens made a leap without the rungs left in the ladder. If a skimmer system is used in your water garden, you'll need to address certain problems.

A water garden skimmer is a wonderful tool, but only if one is needed. Working by pulling in the surface water from the pond, a skimmer collects only floating debris, such as foliage from nearby trees or plants. Skimmers also collect dissolved organic carbons, commonly referred to as DOC. These carbons are waste products produced by airborne debris, dead roots and foliage from aquatic plants, uneaten fish food, and fish feces. D.O.C. usually appear as cream colored bubbles around waterfalls. If there are numerous trees or plants that shed their foliage into the pond, then a skimmer could be needed.

Bear in mind, however, that the purpose of water gardens, unlike dedicated Koi ponds, is to grow aquatic plants. During the growing season, a typical water garden may have half or more of its surface covered with aquatic plants. These plants complicate the work of the water garden skimmer by setting up an obstacle course for the surface debris trying to make its way into the skimmer. Unless floating leaves can be pulled into the chamber fairly quickly, they sink to the pond bottom. Using a skimmer with your water garden, then, may mean cutting back on the number and size of aquatic plants grown in your pond. You'll also want to be sure that the skimmer does not create a strong current on the pond's surface near your water lily plants. Water lilies, of course, do their best in still and calm water. One last accommodation you'll have to make in using a skimmer with your water garden is corralling your free-floating plants. Smaller floating plants, such as *Azolla*, duckweed, parrot's feather, frogbit, and *Salvinia* are pulled directly into

A camouflage rock hides the skimmer installed at the pond's edge. The pond's surface water is drawn into the skimmer where a mesh bag collects debris.

Do not obstruct the opening to your skimmer with rocks!

the skimmer system where they accumulate in the collection bag. Larger floaters, such as water hyacinth and water lettuce, may also be pulled into the system, or they may simply block the opening to the skimmer.

A related problem should also be addressed *inside* the skimmer unit. Just as surface debris and plants are pulled into the skimmer, so too are frogs and small fish. Frogs are active enough that they often escape from the mesh bag. Small fish swim right through the mesh. However, with the strong, inward flow, neither animal is able to escape the unit. Both animals can be pulled into the pump where they are killed, often clogging the pump. If they are too large to be drawn into the pump, they may be merely pinned against the intake. Small fish die there from the water force breaking their backs and inhibiting their respiration. Frogs suffocate if unable to escape the pull and make it to the surface to breathe. If frogs and small fish are a concern, rig a fine mesh protective grid at some distance above the pump. Be sure your pump is not so strong as to capture small animals against the grid. Because these skimmer units rarely use a pump smaller than a 1200 GPH, the problem may not have a solution short of dedicating a portion of your garden as a frog-and-fish cemetery.

Another aspect of the skimmer's recycling surface pond water, and even more important to your pond's health, is oxygen levels in the water. The greatest oxygen exchange or oxygen-entry into your pond's water is at the pond's surface where the water touches the air. The water garden skimmer recycles only the most oxygen-rich surface water in the pond. Deeper waters remain all but stagnant and deprived of the benefit of oxygenation. Your fish are the ones who suffer, especially in warm temperatures when the water holds even less oxygen than in cooler temperatures. Inevitably, it is the named family pet that turns belly up, suffocated with a lack of oxygen. If you include a skimmer in your pond design, you will need *another pump* set in the pond's depths to recycle these oxygen poor waters. You may wish to direct the water through a properly sized filtration unit outside the pond, or you can direct it through a spouting ornament or additional waterfall.

As you can see, installing a skimmer system with your water garden creates certain problems. Nearly all, however, can be resolved. You must decide if the resolutions make the installation worthwhile in your own pond.

If you decide that, yes, your season-long leaf-ridden pond does need a skimmer, be sure it is installed properly. Skimmers should be plumbed into a bio-filter to allow your friendly, aerobic bacteria access to the oxygen-rich waters being cycled from the pond's surface. Ideally, install the skimmer on the opposite side from the waterfall/water return. Also, site the skimmer where the prevailing winds will blow the floating debris to the unit. Heavy winds may overcome some skimmers.

Proper size is very important. The mouth or the opening to the skimmers range from 6-18 inches across. Obviously, a larger opening can handle larger leaves. Proper pump size is also very important. Water turnover ratio should be at least every hour to hour and a half.

The skimmer is usually installed directly through the pond liner, cutting a hole in the liner. (If you are not comfortable doing this, there are skimmers that work quite well sitting directly in the pond.) If your pond is installed by a professional, check references. There is no forgiveness installing these units. An improper installation usually means leaks and probably the installation of a new pond liner.

The bottom line in determining whether or not to install a skimmer system with your water garden is to look at your own pond design and situation. No two ponds are alike. Your pond is not like your neighbor's nor like any of the pretty pictures a salesperson may flash in front of you. Ask yourself, do I have a season-long, persistent problem with floating leaves and debris on my pond? Can a skimmer system be installed in conjunction with my bio-filter? Can I provide aeration to water below the surface of the pond? Can I grow what aquatic plants I wish in my garden? Can I sacrifice a few small fish and some frogs?

Do I have a skimmer system in my pond? No, I don't need one.

Linda Siler is the President of the Springfield Watergarden Society in Springfield, MO.

Make Your Own Surface Skimmer System

Many years ago, Joe B. Dekker of Wycliff, New Jersey, designed a pond filtration system based on the concept of swimming pool skimmers. Joe's directions were printed some twenty years ago in Mechanix Illustrated magazine and then again in 1996 by Helen Nash in The Complete Pond Builder. Joe recommends the system for ponds of at least 4 x 6 feet with a submersible water garden pump that produces at least 750 gallons per hour.

Materials Needed

- One 30-gallon, heavy-duty, plastic trash can
- One 10 x 9-inch piece of plastic, 1/8 inch thick
- 11 6/32-1 1/4 inch bolts with nuts
- 5 screw-in hooks
- One tube of RTV single-component silicone
- One nylon mesh laundry bag
- 1 1/4-inch flexible black hosing to reach from pump to waterfall
- Submersible water garden pump, at least 750 GPH
- Hose adapter, if required
- Optional: filter foam to fit inside dimension of trash can

Preliminaries

1. Excavate a hole adjacent to the pond edge to accommodate the 30-gallon trash can so that the pond's water level will be at the mid-point of the centered 7 x 8-inch cut-out 1 fi inches from the top of the can.

2. Layer the bottom of the excavation with 2 to 4 inches of well-tamped, crushed stone.

3. Provide a shallow trench from the can to the waterfall for routing the flexible, return hosing. A bio-filter at the top of the waterfall takes advantage of the well-oxygenated returning water.

Preparing the Can

1. Mark and cut out a 7" (vertical) x 8" (horizontal) rectangle 1 fi inches down from the top and centered on the front of the can.

2. Cut a slot from the top edge for the pump hose and electrical cord to exit above the water level when the lid is replaced.

3. Cut brackets from 1/8 inch thick plastic:
one at 10 x 1 1/4 inch
two at 7 x 1 1/4 inches

4. Set the can into the prepared excavation.

5. Apply a 1/4 x fi inch line of RTV single-component silicone around the face of the can's cut-out. Press the pond liner to the can face and hold it firmly to the silicone by bolting on the three brackets. *Brackets and can edges should be predrilled*. The silicone will require at least 24 hours to cure before water can be run through it.

6. Use the can's cut-out as a guide to cut the liner *across the top and down the sides* for a matching hole. *Do not cut across the bottom of the opening*. Fold the liner flap to the inside of the can.

7. Attach two screw-in hooks approximately eight inches down from the top of the can on each side of the cut-out and two screw-in hooks one inch down from the top of the can on each side of the cut-out. Attach another hook one inch down, to the center of the opposite side of the can. The laundry bag will hang from the five hooks with the pond liner flap falling within the bag.

8. Connect the flexible hosing to the pump and place the pump in the bottom of the can. Route the hosing and pump's electrical cord from the can. Provide a GFC outlet for the pump. Route the hosing to return water via the waterfall.

9. Optional foam may be cut to fit inside the can above the pump for small particle filtration.

10. Attach the edge of the mesh bag onto the hooks while keeping the slack to a minimum.

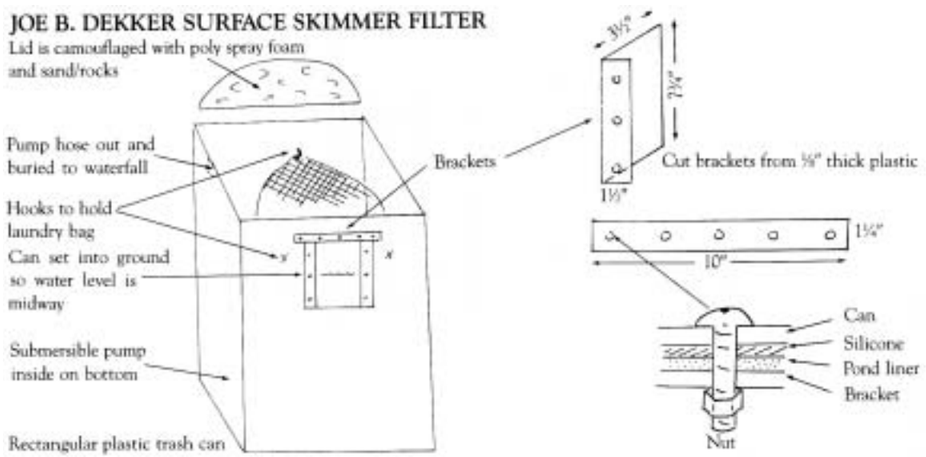
11. Spray foam may be sprayed onto the can lid and sand tossed onto it for camouflage, or use a flat paving stone to conceal the lid.

A pond tucked among many deciderous plants might benefit from a skimmer system.

Using the Skimmer

1. During operation, maintain the water level at one-half to one-third the way up the opening of the cut-out.

2. Clean out the nylon bag as needed. Hose clean any foam media as needed. If the media is functioning as bio-media, it should be cleaned with non-chlorinated water.



Travels with Helen & Marilyn....

Without a doubt, the best part of our job is the travel. Usually it involves a speaking engagement promoting and helping some of our favorite organizations — local pond and Koi clubs, Master Gardener and County Extension Programs, Nurserymen Associations, botanical gardens and arboretums, and garden shows. With cameras draped around our necks, we also get to meet many of you in person...and enjoy your hospitality, friendship, and gardens. Often you have shared in our travels, perhaps unknowingly, by reading the pond tour and garden features here in Pond & Garden. With this new feature, we invite you to share in other of our travel adventures.

At Ben and Kit Knotts' home, Kit treated us to *Victoria* popcorn. Kit notes this is not "conspicuous consumption" since they produced 14,000 Victoria seeds this past year, with a few that couldn't be pedigreed and were marked 'discard.' She put the rinsed seeds inside a brown paper bag and popped them in the microwave. They do taste like popcorn, but without the hulls!

How could I not share a photo of Albert? I met Albert at John Hayek's home in Michigan. You might say Albert is a very friendly turkey. He followed us up and down the hill twice, spreading his tail feathers in all their splendor. This picture was taken as he finally completed the last trek up the hill and cornered me on the back porch....where he performed a courtship dance all over my feet! Stomp... Stomp... Stomp.

You all remember Kit Knotts of Cocoa Beach, Florida, who wrote the incredible *Victoria* feature in Issue No. 4? Kit had told us of their 'pet' green heron, Fred. Pretty farfetched, we thought, to even imagine a heron visiting the pond for dinner with the pond owner dishing it up. T'is true. Not only does Fred regularly appear at dinner time, but he responds to his name. Kit keeps trap baskets in her ponds to capture the minnows that Fred enjoys every day with her. And yes, he will take them from her hand.

Come see us:

Wichita, Kansas
March 3-4 - Wichita Flower Show

Flint & Lansing, Michigan
March 17 - Genesee County Master Gardeners Pond Seminars
March 18 - Lansing Master Gardeners Pond Program, MSU
Contact Darlene Jennings at 810-743-2424 for more info.

Lincoln, Nebraska
March 11 & 12 - Campbell's Nursery & Garden Center Annual Spring Fest 2000
Contact Dennis Campbell at 402-423-4556 for more info.

Springfield, Missouri
June 28-July 3 - AKCA Annual Seminars
Contact Linda Siler at 417-883-2399 for more info.

This past summer, the Mid-Michigan Pond and Water Garden Club held its first annual pond tour. President Darlene Jennings (center, in hat), invited me to attend. Club members met for a picnic by the lake in Columbiaville at the Enos home the night before the tour. Of course, Darlene had to tell everybody about Albert and me. Even a rainy day couldn't spoil the tour — wonderful people and beautiful gardens! We had such a good time that we're going back this spring.