



Pond & Garden

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Cover: *Nelumbo* 'Charles Thomas,' hybridized by Perry D. Slocum.
Photo by H. Nash.

Our Wish for You

After all the hoopla last New Year's, I wonder if this one, the real beginning of the new millennium, will be anti-climactic? Since all New Years mark beginnings, this one will be no different. Our ponds may nap in the South, even snore up North, but they will return — full of hope, beauty, and serenity. What more can we wish you in this holiday season? May God bless you all!



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SEASONAL PONDKEEPING

by Scott Bates



Brrrrrrrrrrrrr.....

In colder climates, hardy aquatic plants are now dormant; warmer climates are just a few weeks behind. If you haven't done so already, remove any leaves and stems from your hardy water lilies and sink them into the deep spot in the pond. Bog and marginal plants are also trimmed off, making certain that the plants are below the water level. Some marginal plants, like cattails and rushes, keep a rigid stem even after they are nailed by frost. These can be left as they are with water over the top of the pots. The dried leaves and stems aid in allowing gases to escape from an iced-over pond. This also provides a visual marker during the winter of where the pond lies beneath the snow.

Another chore to attend, if you haven't already tended it, is to remove any accumulations of organic matter from the bottom of the pond. Tree leaves, grass clippings, particulates of dead aquatic plant leaves and flowers, and fish wastes are detrimental to pond health during the winter. While some aerobic decomposition may occur, using vital oxygen, the primary decomposition in winter conditions is anaerobic which produces fish-toxic hydrogen sulfide. These pond cleaning chores should be accomplished by mid-November. Especially if the water has already chilled below fifty degrees, perform the chores gingerly as your fish are left more susceptible to stress with their immune systems being shut down.

Getting the fish ready for the winter is much

simpler. To help fatten them up for winter, you probably switched to a wheat-germ-based food that is higher in carbohydrates and lower in protein than their traditional summer fare. Once the water temperature stabilizes below fifty, stop feeding the fish altogether. Even if the temperature outside warms for a brief spell, don't feed them, as their metabolism is too slowed to properly digest food. They will satisfy their occasional hunger with the algae that grows on your pond's liner.

Cold climate ponds less than 30 inches deep require a floating pond de-icer to keep the pond from freezing solid. Deeper ponds may benefit from a small bubbler in the top one-third of the water to help exchange the gases and to keep up oxygen levels. This may be very important if your pond is maximally stocked with fish. Note that setting up aeration devices any deeper than the top third of the pond's depth creates a convection current that gradually chills (and freezes!) the water clear to the bottom. Regardless of depth, I prefer to use a bubbler in my ponds, with an optional heater relative to the depth of the pond. Check bubblers and heaters once a week to assure yourself of their proper working order. Remind your fish that this is but a short winter's nap. Have a good winter and a prosperous new year! ♡

Scott Bates and parents, Gary and Rosemary, own Grass Roots Nursery, 24765 Bell Road in New Boston, MI. He can be reached at 734-753-9200. Visit their website at www.grassrootsnursery.com.

Design Ideas: TABLETOP FOUNTAINS

Combining art and water....

At Aquatic Gardens in Birmingham, Alabama, we discovered unique tabletop fountain designs by Art Matters. Each fountain is powered by a mini submersible pump that is well concealed in the fountain's receptacle. Copper tubing routes the water from the reser-



voir up to the horizontal extension where water drips from holes sited above the vertically-suspended ceramic tiles. Because the tiles are worthy of artistic display on their own, the overhead light fixture that comes with each fountain is especially appropriate. Stacked stones below the tablets provide further water interest. ♡



BAMBOO AND YOUR POND

by Gordon Powell

It is generally bad for business to talk someone out of buying your plants or products. But as responsible nurserymen and greenhouse owners know, some plants just should not be introduced to certain areas. The water hyacinth immediately comes to mind. And no matter how much I would love to get rid of the *Vinca major* in the backyard (and side yard and front yard), I will never pot it up and sell it to some unsuspecting gardener.

While I do not consider running bamboo an invasive plant, this is merely a personal bias. Most hardy bamboo will take over *if you let it*. Twenty-five years ago, my sister-in-law planted the yellow groove bamboo, *Phyllostachys aureosulcata*, next to a field in Northern Baltimore County, Maryland (Zone 6). The one-acre patch is now a magnificent grove with mature canes upward of 2" in diameter.

The problem is, last year it ate a volleyball court. I would not be surprised if it grew to 2 acres in a few years. No attempt has been made to control it and a serious effort would be required to contain it now. It is a beautiful grove but *might* not fit in a smaller garden.

Now back to my original story ... The reason I talked the guy out of planting bamboo was he wanted to put it behind his

new pond. He had just finished a well-crafted, home-made pond with a 45 mil EPDM liner. All the stonework and plantings were his own. The bamboo would look beautiful, creating a textured hedge for a backdrop casting reflections on the water. In about two or three years, the bamboo would start to look pretty good. It would also be growing towards the moist area under the pond, the sharp rhizomes eventually piercing the 45 mil liner.

Linda Siler of O'Quinn's Water Gardens in Springfield, Missouri, and frequent contributor to *P&G*, has been fighting a *Phyllostachys* species for years. If you ask her about it, she makes funny faces and growls a little. Ian and Phyllis Donnelly (featured in *P&G*, Vol. 2 #1) also reported a piercing of their pond liner. And this was a dwarf variety! These folks live in upper Zone 6 where the winters usually slow a bamboo down. However, when it's cold, the



Gordon's sister-in-law planted this magnificent yellow groove bamboo in Maryland 25 years ago. Last year it ate a volleyball court.

pond helps insulate the ground below it, and the bamboo will tend to grow towards the warmer soil.

Don't despair. Bamboo *can* be contained, controlled, and used around ponds. But careful planning, and site and species selection should be considered. Containment systems employing sound techniques should be designed into a landscape plan to keep the bamboo away from the liner.

On the other hand, a large pond without a liner can be an excellent site for bamboo. We have just started site plans for the restoration of an existing half-acre pond and surrounding woodlands. The owners want to introduce plant species that will attract and sustain wildlife.

On the far berm, we will plant bamboo. When mature, the complex web of rhizomes will help stabilize the berm. The grove will tower above the water, casting delicate reflections on the pond's surface. The bamboo will not grow into the pond as water is a natural barrier. When the grove has reached a reasonable size, the new shoots can be harvested for food and the canes harvested for fences, or other garden structures. Carefully maintained, the stand of bamboo will be a beautiful addition to the landscape, and provide a sustainable crop in just a few years.

Another possibility for northern gardeners is to grow the hardy clumping bamboos. Many of the mountain bamboos are non-invasive, and can survive more severe winters than other bamboos. *Fargesia* species are the most common, slowly growing between six to twenty feet tall. Most do not tolerate the extended heat of southern summers so careful selection is an important consideration.☛

Gordon and his wife, Mila, own Ozark Bamboo Garden, 1059 CR 266, Eureka Springs, AR 72631. If you have any questions about using bamboo around your pond or garden, call them at 501-253-6801, or e-mail bamboos@cswnet.com.

EARTH PONDS

by Tim Matson

In the "Scouts" chapter of his book, *Earth Ponds*, Tim talks about stocking his new earth pond, noting considerations of pH and oxygen.

No single formula works for stocking fish, but there must be a million notions. At the top of the list is the precaution against stocking until a year after excavation. Evidently, stocking too soon kills fish. I've heard different explanations for this. Newly dug ponds are likely to be unbalanced on the pH scale. In acid water fish develop respiratory problems and hypersensitivity to bacterial parasites. East of the "Lime Line" that runs straight north from the southern tip of Texas, most ponds test acid. In Illinois, many new fish ponds become fatally acidic because of metallic ores in the ground. Strip mine pits can be reclaimed as fish ponds, but not until high acid has been buffered by incoming leaves and organic matter, or in some cases, chemicals. Other causes of acid water are inorganic fertilizers and sulphurous fungicides leaching from nearby cropland and acid rain. Alkaline waters are more forgiving, but in the extreme, they can be toxic and sterile. Flowing wells and springs may contain high amounts of sulphate, methane, and gases that elevate the alkaline content. In Florida, new ponds tend to be highly alkaline because of rich phosphorous deposits in the earth. Limestone quarry waters start off hard enough to be completely sterile.

The remedy? Like good garden soil, fertile pond water should balance acid and alkaline elements. To temper acid water, pond keepers add ground limestone or unleached hardwood ashes hauled from the wood stove. Manure and compost tend to balance both hard and soft waters. And time helps; the seasonal inflow of nutrients mel-



lows pond water.

The correct pH depends on the type of fish being cultured. Optimum for trout is between 6 and 7 – 6.5 is best. Most warm-water fish like their water between 5 and 7, although they are more tolerant of extremes. Catfish, for instance, thrive between 5 and 9, with something between 7 and 8.5 best.

I wasn't worried about the pH. Like the surrounding soil that holds the pond, the pH was a bit acid, about 6. But I was concerned about oxygen levels. In Vermont, veteran pond makers know that freshly dug ponds will suffocate fish. Organic matter on the bottom, unless scraped clean, burns up oxygen in the water as it decays. Local pond makers traditionally postpone stocking until the second year, giving the water a chance to cure.

Henry Marckes had cautioned me about premature stocking. He suggested one old custom for testing pond oxygen. "Weigh down one end of a red oak plank," he said, "and drop it to the bottom of the pond. Bring it up after a week, and if the end is discolored, it shows a lack of oxygen." ♣

Excerpted by permission from Earth Ponds, The Country Pond Maker's Guide to Building, Maintenance and Restoration by Tim Matson, Countryman Press, a division of W.W. Norton & Company, Inc., Woodstock, VT, ISBN 0-88150-155-7. Countryman Press has also published Tim's Earth Pond's Sourcebook, The Pond Owner's Manual and Resource Guide, ISBN 0-88150-358-4. Both are available at your local bookstore. To order Tim's video, Earth Ponds, Introduction to Pond Design & Construction, send \$29.95 + \$3.00 shipping and handling to Tim Matson, RR#1, Box 77, Thetford Center, VT 05075-9601.

WINTER POND CHECKLIST

1. A clean pond! Avoid risking your fish from wintering parasites, pathenogenic bacteria, and deadly hydrogen sulfide produced by anaerobic decomposition of organic debris on the pond bottom.
2. Do not feed fish after water temperatures have stabilized below fifty degrees. Close out your autumn feeding with high-carb foods like wheat-germ-based pellets or Cheerios. You won't feed again until spring waters have stabilized above fifty degrees.
3. Winterize filtration systems once the water temperature has stabilized below fifty degrees. If you will run your pump and filter during the winter, remove filter media, clean, and store, or use some media to keep a sample going through the winter indoors.
4. Protect your pump and plumbing from freezing by draining and leaving all drainage valves open. If you will continue running them, provide insulation, if necessary.
5. Reroute water kept running through the winter in freezing zones to avoid ice sculptures on the waterfall; you don't want to drain your pond under the ice!
6. Store submersible pumps indoors in a bucket of water to prevent their seals from drying out. Store mag-drive pumps dry.
7. If you will keep a three-percent salt dose in the pond over the winter, store aquatic plants elsewhere.
8. If fish require medical attention, remove them to an indoor quarantine tank. Most medications are not effective in cold winter water. Allow any water samples for testing to gradually attain room temperature; tests are not accurate with cold water.
9. If fish are wintered indoors, move them within their own pond water and allow it to equalize slowly to the indoor facility's temperature. Provide a bio-filter and a net covering to prevent jumping out.
10. Fish wintered indoors in a cool basement location can be treated and monitored as hibernating fish. Feed appropriate to water temperature of their tank. Do not return them outside until outdoor temperatures approximate indoor temps.
11. Prepare to keep a hole open in any potential ice cover on the pond. Use heaters, de-icers, poly tents, solar blankets, wooden planks, etc.
12. Avoid disturbing your fish; they need to conserve their fat-reserve energy. Do monitor them, however, for any signs of trouble. ♣

Browsing the Web...

These websites are listed in this issue of Pond & Garden!

www.aaswinners.com
www.all-americanselections.org
www.americanwpp.com
www.angelfire.com/ga/augustakoi
www.anonbay.com/ane
www.aquababies.com
www.aquagardens.com
www.aquariumservices.com
www.aquatecfountains.com
www.aquaticgardens.com
www.aquaticsexotics.com
www.atlantakoiclub.com
www.Avongarden.com
www.AZPonds.com
www.barsons.com
www.bartonbradley.com
www.bendtar.com
www.bzli.com
www.campbells-nsry.com
www.centerpointpond.com
www.cirr.com/~ntwgs
www.ColoradoKoi.com
www.dragonflydream.com/koi
www.escortlighting.com
www.fallingh2o.com
www.geocities.com/iks_1999
www.grassrootsnursery.com
www.greenvista.com
www.Hardscapematerials.com
www.hemphillsonline.com
www.hoffmansgardencenter.com
www.hozelockcyprio.com
www.jimswatergardening.com
www.kcnet.com/~wgskc
www.anjonproducts.com/pondliners.htm
www.geocities.com/picketfence/5193
www.ccsi.com/~sgray/austin.pond.society/apshome.html
www.geocities.com/TheTropics/Shores/8015/index.html

www.koiclubsandiego.org
www.KoiFishPonds.com
www.koigarden.com
www.koi-pond-feeders.com
www.Koiusa.com
www.KoiVet.com
www.Koivilla.com
www.lilyblooms.com
www.lilypons.com
www.linkny.com/barleystraw
www.lonestarkoi.com
www.lotussong.com
www.louisianairis.com
www.mastersons.net
www.MiracleKoiFood.com
www.mobot.org
www.mpks.org
www.microbelift.com
www.nashvillepond.com
www.nelsonwatergardens.com
www.netjunction.com/solt
www.nhg.com
www.nhwatergardens.com
www.oasis-water-gardens.co.uk
www.olm1.com/~pondclub
www.on-line-mall.com
www.patiogardenponds.com
www.perfectpond.com
www.plantdoctors.com
www.plantabbsproducts.com
www.pondandgarden.com
www.pondbloomers.com
www.PondClub.com
www.pondlilyfarm.com

www.pondfiltration.com
www.pondpumps.com
www.ponds4u.com
www.pondshop.com/catalog
www.Ponds2go.com
www.pondvac.com
www.puddlesnpads.com
www.reedsnweeds.com
www.reliablegarden.com
www.RichtersGardens.com
www.sequencepumps.com
www.suburbanpond.com
www.SWGReplicraft.com
www.tcfb.com/perwatg/
www.tetra-fish.com
www.thekoistore.com
www.Thelandscape.com
www.thepondexperts.com
www.ThomCpondpumps.com
www.ttpfrog.com
www.watergarden.com
www.water-gardens.com
www.waterponds.com
www.Watersedgenursery.com
www.watertropicals.com
www.webbsonline.com
www.wernerspond.com
www.wggalore.com
http://home.earthlink.net/~riemans/
http://members.aol.com/MVWGS
http://members.xoom.com/cwgs
http://members.xoom.com/WGSO
http://sites.netscape.net/ripplefarms/
http://members.xoom.com/WacoPonds/index.html
http://tucsonwatergardeners.tripod.com

KoiVet.com

By Dr. Erik Johnson

Winter and spring fish feeding tips

It is a temptation on the earliest balmy day to want to feed your fish as they crowd the surface. It would be a wise soul who knew that there would be no more frost or plunges in temperature after the feeding. It is all too common for a person to load their little bellies (they have no functional stomach;



it is more accurate to say “proximal small intestine” than ‘bellies’), and then there’s a fatal cold snap which wipes out the fish that ate the most, or all of them depending upon how loaded they got. The problem is that

the fish are not capable of adequate digestion in cold water, and the food often turns fetid in the bowel, causing bacteria to cross the lining of the intestine and kill the fish through the bloodstream (sepsis).

My advice is that the fish can survive very well on minimal or no feeding after temperatures drop below fifty-five in the fall; and until water temperatures are above 50 to 55 degrees in the spring, and really, until you are absolutely certain that frost is past. In the Southeastern United States, March 16th would be considered a good re-start date, although we have been surprised by deep snow in the past.

A good food to re-start on would be Cheerios or Wheat Germ based diets... An excellent diet to end the year with, or even better, to begin the year with, would be the medicated feeds containing either Romet (ormetoprim Sulfa), or Terramycin (Oxytetracycline), or even the proprietary foods from some retailers containing Oxolinic Acid... Your local livestock or agricultural feed store should be able to order the antibiotic-enriched catfish chow for you. Feed this for two weeks or more in the springtime for an ulcer-free spring. Do not, however, feed the food all year round. Catfish chows are for short-term use, even in catfish! And they eventually cause fatty liver syndrome in Koi. Starting and ending the season with these feeds has the benefit of ensuring that the fish neither sleep, nor emerge from sleep, with bacterial infections.☺

Excerpted and printed by permission from Dr. Erik Johnson's Koi Health and Disease, reproduced at koivet.com.

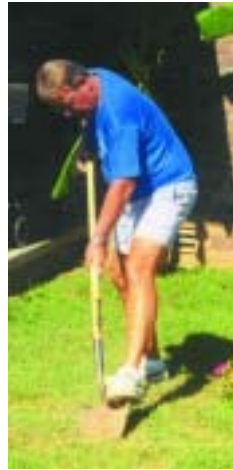
OUR BACKYARD HAVEN

by Bill and Jackie Reynolds, Springfield, MO

We started building our ponds August 1, 1999, and on August 24, we added our Koi. Our ponds total approximately 6500 gallons. With the upper pond covered with water hyacinths, it serves as both a vegetable and a bio-filter. From there, the stream cascades into the 14x20' lower pond where we grow a variety of aquatic plants.

Bill built the little water mill from lumber salvaged from the old (c. 1905) Hickory Barron School house. An 80 GPH pump turns the waterwheel. Besides adding a quaint look to the water garden, the mill also houses a UV light.

In the surrounding garden, statues rep-



resent each of our five grandchildren, along with a lonely golfer with water trickling from his umbrella.

Arkansas stone paths surround the pond. At one end of the pond, water gushes from a 'cave' in the rock wall via a 950 GPH pump. Just off the walkway, a pair of old boots peek from under a moss-covered rock. The marker was made by our grandson,



Christopher: "Here lies Snake Reynolds, the second-fastest gun in the Ozarks." Leaning against the marker is an old miner's shovel found in the California desert in the 1930's by Bill's aunt and uncle.☺



BAY OF FUNDY GARDEN – A GARDEN FOR ALL SEASONS

Text and photos by Sandra McLean Cutler



The Cutlers' Bay of Fundy garden invites visitors to take a closer look at the rocks.



Sandra's husband gifted her with a sun-carved sandstone rock that became a focal point in their Bay of Fundy garden.

Originally built this water feature to highlight the many colors of the rocks gathered during our vacation at the Bay of Fundy in New Brunswick, Canada. The carved sandstone sun was a birthday present from my husband. Since it was perfect for this feature, we included it when I had to rebuild the pond (I used 6 mil plastic the first time around...) My husband drilled holes in a copper pipe to allow the water to run down the face. The bricks in the shallow part of the pond are worn street bricks that are supposed to represent sun rays. To the right of the sun carving, water falls over and between green mica rocks. The falls have a quiet, relaxing sound, enhancing tranquil moments when we're sitting at the picnic table. Although the whole feature is supposed to invite you to have a



In early spring, perennials, bulbs, and deciduous trees and shrubs return to life, joining the dwarf and unusual conifers that have been the garden's mainstay throughout the winter. A dwarf golden Hinoki cypress (*Chameacyparis obtuse* 'Nana Aurea') is sited near the head of the stream at the right. In the trough garden is the diminutive *Chameacyparis pisifera* 'Boulevard', while the glowing, gold-tipped Swiss mountain pine (*Pinus mugo* 'Aurea') begins to tone down its brilliant winter gold.



By early summer, the garden's colors have acquired a soft blue-green ambiance.



In late summer, the garden glows warmly in red to brown hues that hint of the autumn to come.

closer look at the rocks, combined with my love of dwarf and unusual conifers, it has truly become a garden for all seasons. ♡

Sandra McLean Cutler is the author of Dwarf and Unusual Conifers Coming of Age. A Guide to Mature Garden Conifers. Visit her website at www.bartonbradley.com for more information. In future columns, Sandra will introduce us to interesting dwarf and unusual conifers to include in our own gar-



By autumn, perennial and deciduous plants are beginning their slumber. However, the garden maintains its framework with the evergreen, structural elements of conifers.



Peeking through the winter snow are many of Sandra's dwarf conifers that provide rich contrast with the browns of the dried perennials and grasses left to offer seed to the birds.

A PONDKEEPER'S MOST PRACTICAL GIFT

by Helen Nash

We live about a mile from a heron rookery. Need I say more? Last winter, these magnificent birds totally wiped out Mom's Koi ponds. Until we could find the time to rebuild the ponds with all the bells and whistles to ensure our Koi's safety and health, Dave built an 8x8 foot landscape timber pond in the back room. We rigged a bio-filter to a 1200 GPH pump and relaxed, knowing the special Koi I bring back from my travels were safe...until this week.

Upon awakening, I headed for the Koi pond, like I do every morning. The pump had stopped! The babies weren't begging for air, *yet*, and the bio-filter was probably not out-of-commission, *yet*, but I knew I needed to get things running again soon.

With a drop for this issue to be made at Rich's in Indianapolis, I decided to stop at every hardware store, Walmart, Lowes, pet store, nursery, whatever, on the way home to find a replacement pump. Three hours later, I could only report that in September, the only pumps to be found on the north side of Indy were waaaaay too big or tabletop-fountain-sized. Fortunately, my last stop was our local Ace hardware store. They had one 1200 GPH submersible pump left!

What if I couldn't have found a replacement pump? I've heard many sad tales of pond losses from pumps going out. One of the articles I dropped off to Rich was Paula Biles's holiday gift ideas. Perhaps

the most practical and appreciated gift of all is a back-up pump. Especially if you or your loved-ones-with-ponds do not live closely enough to a supplier, a back-up pump could save the fish. This is especially important for those of us who have a maxed fish-loading in our ponds or in our indoor-wintering facilities. In lieu of a back-up pump, at least be sure to have an air-pump and aerator stone on the shelf. The most practical of gifts can be life-savers! ♡

by Robert Holland,
Chief Net Officer and Club Coordinator

Water gardening enthusiasts are flocking to pond tours as never before. "It's a great way to get new ideas and free advice," says Jan Jordan of Richland, Washington. Jan and her club, the Mid-Columbia Koi and Pond Club, just hosted their 2nd Annual Pond Tour on September 9th.

The Tour featured 13 member ponds, each one a showcase of ideas for every ponding budget, and let's not forget the "free advice." Pond visitors were greeted by friendly owners who answered questions all day long. "Our club membership doubled after last year's Tour," Jan reported. "We jumped from 30 to 60 family members immediately."

PondClub.com, the people who are creating a "virtual village" of pond clubs and Koi clubs around the world (see "Virtual Village," *Pond & Garden* magazine, July/August, 2000) wants to bring these Club Tours to everyone on the Internet. That's why we created PondTours.com. I've spent the summer photographing pond tours all over North America, and



Portland, Oregon's Mayor Vera Katz prepares to cut the ribbon in the dedication ceremony for the Portland Classical Chinese Garden of Awakening Orchids. Visit PondClub.com for more pictures of the largest urban Suzhou-style garden ever created beyond China's borders.

you can see these Tours now, including the Mid-Columbia Pond Tour, on PondTours.com. Just click on the Photo Album graphic at the top of the homepage and choose your Tour in the Directory.

You'll also find other great Photo Albums there, too: Japanese Gardens in Portland, Seattle, Vancouver, B.C., Chicago and St. Louis; and Chinese

Classical Gardens including the "Garden of Awakening Orchids" which opened in Portland on September 13th. The Gala event was attended by the Mayor of Portland and the Mayor of Suzhou, Portland's sister city in China. "When I was in the garden, I felt like I was in China," commented Chinese Ambassador Li Zhaoxing.

Everyone is invited to visit PondTours.com and "Join the Tour." Enjoy. It's the next best thing to being there yourself.☺



Mid-Columbia Club President, Ron Boedeker, explains how his Koi Café has improved the growth of his Koi.

ASK CHUCK: PONDKEEPING Q&A

by Chuck Rush



Q: Recently I put some new Koi in my pond, and I was wondering why the fish stay at the bottom of the pond and rarely move. The water and everything are fine. The fish are healthy and show no sign of disease — they just stay at the bottom. I have only one water lily and some other bog plants, but they don't cover much surface area. Also, I have bricks at the bottom of the pond forming a small bridge to hold up a fountain. The fish seem to like it under the bridge. They won't come up to eat. What should I do to help them not be so afraid of me? Since I have had the fish for only a couple of days, I wanted to know when they should start coming up, or when I should start worrying. There are 6 Koi in the pond ranging from 3 to 7 inches, and they all act the same. The Koi were free, coming from a 550-gallon pond that had a lot of algae and 50 to 70 other Koi. My pond is about 220 gallons. I have a filter and a water fountain, but I'm not sure if the filter is biological. Today I covered up the hiding spot and they came out but stayed in a group, still not eating. They seem jumpy whenever people come around, and they swim all over the place. Should I buy sinking food or more plants or something for them to hide in? What??? Steven.

A: Steven, first off, your pond is a little small for Koi. (Koi do grow to two-foot-long, or more!) Fish are easily frightened and

small ponds don't offer much cover which leaves the fish easy prey to predators...and, to them, you look like a really BIG predator. Also, coming from such crowded conditions, your fish have been under extended stress. Transport and a new environment added to the stress. They may eventually overcome their fright and stress-induced behavior patterns, but it will take a long time. You can encourage your fish to come up by making sure that you scoop out any food not eaten in 5 minutes. If it sinks to the bottom, they will eat it there where they are more comfortable and be less inclined to come up to the surface. Also, food sitting on the pond bottom may go uneaten and then just foul the water. Because you have a fountain, adding more water lilies for cover may not be practical. Adding submerged plants may only supply more "food" down at the bottom. Maybe a couple floating silk lilies will let them think they are more protected?! Get acquainted with your filter to be sure it is biological...and large enough to handle your new fish loading. (Test your water regularly for ammonia and nitrite to be sure your filter is keeping up with the load.) If you have named the fish and plan to keep them for the long haul, you may want to start planning now to build them a bigger and deeper pond!*

Ed.note: See page 96 for a fish-training technique.

Many of Chuck's Q & A appear courtesy of the North Texas Water Garden Society. You can reach Chuck by E-mail at crush11@home.com.



Victoria Update

by Kit Knotts

Decisions, Decisions

Though we are still growing our 2000 Victorias here in Florida, many are already looking forward to next year. We hope the question is no longer *whether* to grow Victoria but *which* one to grow! What a great time to review the choices.

There are only two species in the South American genus *Victoria*, equatorial *amazonica* and the more southerly, slightly cooler-growing *cruziana*. *V. cruziana* has by far the most spectacular pads, bright green with very tall vertical rims. It is relatively easy to start and tempting, but it takes its time starting to bloom and so may not be the best choice for those with short growing seasons.

V. amazonica, on the other hand, has the prettiest flowers, often dark pink the second night, but the pads have quite low rims and it can be a devil to start. Though we are all still experimenting, there is growing evidence that *amazonica* is or can be perennial, so it may be the right choice for those with warm water year round.

Then we have the hybrids. 'Adventure' (*amazonica* x *cruziana*) and 'Longwood Hybrid' (*cruziana* x *amazonica*). For most, these will be the perfect plants. Both grow rapidly, bloom early and often, tolerate varying temperatures, and adapt well to different pot and pond sizes.

Pat Nutt's famed 'Longwood Hybrid' is easy to start and easy to grow. New pads are bronze/red, have rims intermediate in size compared with the species, and the plant has a new

flower every three days, often every two for us. 'Adventure,' considered "impossible" until two years ago, is wonderful, growing slightly larger than 'Longwood,' with a new flower every other day; but it is hard to get started.

What we really want to talk about are the back-cross hybrids. They just might be the ticket for many wanting to grow *Victoria*. These are created by crossing a species back to one of the hybrids, giving them many characteristics of the species (3/4) but with hybrid vigor, making them easier to grow. With the agreement of the others who have made the crosses and obtained resulting seeds, Nancy and Trey Styler and Joe Summers, we have named them after the Space Shuttles that inhabit our 'side yard.'

They are 'Atlantis' ('Adventure' x *amazonica*), 'Columbia' ('Adventure' x *cruziana*), 'Challenger' ('Longwood Hybrid' x *cruziana*) and 'Discovery' ('Longwood Hybrid' x *amazonica*). We must say at this point that, given the experience with these new plants is so limited and their genetics ventures into uncharted waters, we don't yet know if they are consistent in their characteristics. But we do know they are good performers for us.

'Columbia' and 'Challenger' are very *cruziana*-like but have tall rims that lean out like pie-plates. 'Atlantis' and 'Discovery' are very *amazonica*-like with low but square rims and colorful flowers. 'Atlantis' in its first year bears our favorite flower, very pointed and reflexed as a first night/second morning flower with burgundy at the center, then opening brilliantly dark pink the second evening.

Seeds can be obtained from The Victoria Conservancy c/o Nancy & Trey Styler, 6583 East Ida Ave, Greenwood Village, CO 80117; phone: 303-850-7150; fax: 303-741-1028; E-mail: Victoria@iwgs.org.

Pond Splash



Pond Tales!

by Steve Katona

Spaniel Swamp Thing

My business partner, Steve Kubrick, has created a series of ponds filled with moving water and plants just outside his kitchen window. Like many of us who work eight days a week, Steve lost a battle this summer – duckweed, rather, a *thick blanket* of duckweed, entirely covered the surface of his lower pond. One day, Steve let his two black cocker spaniels, Peppi and Buddy, out in the fenced yard. He watched as they made their way through the yard doing what dogs do. When they reached the pond's edge, they kept right on walking. The last time I checked, a spaniel can't walk *on* water unless he is named Moses. Peppi and Buddy immediately disappeared under the duckweed. The tiny, invasive plants were so dense that they must have seemed to be solid ground. Steve quickly rescued his pets, bedraggled black bodies covered with duckweed. Watch out for the 'spaniel swamp thing'!

Snake Tug-O-War

A client described to me an Olympic-proportion event, he holding the tail of a pet goldfish, a snake engulfing the rest. Back and forth they pulled, neither one wanting to fall in the big mud pit in the middle, neither one willing to give up the goldfish. Eventually, the good-guy team won the drawn-out battle, and the gold "trophy" was returned to swim in his pond.

Dogpond

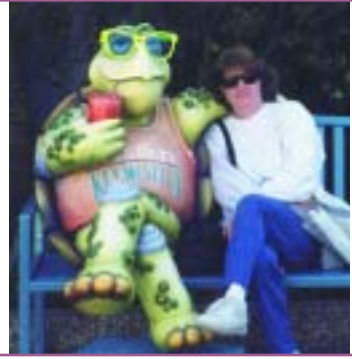
Did you ever have a dog that was permitted on the family room couch but not on the living room couch? There once was a Labrador retriever that loved to swim (*imagine that*) in his owners' water garden. To their dismay, they could not keep him out. They solved the dilemma by building a second pond free of plants but with a re-circulating pump. The lab was allowed in his pond, but not in theirs. This magnanimous dog cruised the neighborhood for other dogs to bring back to *his* pool. The pump needed cleaning periodically — not from sludge, but from dog hair.

Bunny Paddle

Sherlock Holmes would be amazed. A client brought in a mystery – something was chewing on her water lettuce. My thoughts were that raccoons were shredding them or perhaps large koi were nibbling away....but not is this cottontale. Days later, the lady called and said I was wrong. The mysterious vandal was a rabbit. I told her rabbits don't eat water lettuce like regular lettuce because they can't get to a plant floating in the middle of a pond. A bunny would have to swim. She said, "That's exactly what is happening." Elementary, my dear Watson.☛

Observation is a great reward to having a water garden. Please send your True Critter Tales to North Hills Water Gardens, Critter Tales, c/o Steve Katona, 1615 Babcock Blvd, Pittsburgh, PA 15209, and he will share them in a later "Pond Splash."

Travels with Helen & Marilyn



“Is this heaven?”—“No, it’s Iowa!”

(Field of Dreams)

Even the title of the movie that made the above quote and the most familiar, “If you build it, they will come,” a part of our communal experience captures the feeling of the Pond Expo 2000 offered by the combined efforts of The Eastern Iowa Pond Society and The Northern Iowa Association of Pond and Water Gardeners. Well done, Iowans!

Ray Giacobone brought in four microscopes with *Trichodina* slides and gave us a quiz that humorously caught us all in the trap of not thinking. His fish health portion of the Iowa Pond Expo was both entertaining and informative.



A special treat at the Iowa Pond Expo was meeting Josh Spiece, an avid pondkeeper, who has agreed to write us a feature on water gardening for the handicapped. Josh, thank you for sharing your expertise –we love you!

In case y’all don’t know, I rarely fly! The night before the Iowa Pond Expo, I couldn’t miss the grand opening of Broadstrokes, a new art gallery in the Broadripple community of Indianapolis. My daughter, Michelle Marocco (Gershman), was the featured, one-woman show artist with her collection of encaustic (hot wax) media paintings. Mom needed a hug, a kiss, and a few prideful tears before the all-night trek to Iowa.



The Iowa Pond Expo 2000 was ably planned and managed by Chris Wendell, Dixie Smith, Bonnie Happel, and Jackie Allsup, among others. (Chris and Jackie have both written features for P & G; what fun to meet them in person!)

GARDEN ADVENTURES

by Joe Summers, Missouri Botanical Garden

Holiday Celebrations

When autumn chills to winter's cold, many gardeners stay toasty warm indoors. This, too, happens at Missouri Botanical Garden. Although there are indoor, year-long displays in the Climatron and Linnaen House, twice a year with the Orchid Show and the Holiday Show, visitors are invited to the indoor floral display hall. From November 22, 2000, through January 5, 2001, our guests will be warmed by the sights and sounds of the annual Holiday Flower Show.

Each holiday season offers a different theme, having ranged from "Toyland in Bloom" to "Magic of the Crystal Palace." This year's Holiday Flower Show concludes the year-long celebration of the 200th birthday of Henry Shaw, MBG's founder.

A leisurely stroll along the artificial snow-edged path transports you back to the Victorian Era. The formal setting features thousands of plants grown on-site by the horticulture greenhouse staff. Besides traditional red poinsettias, you'll find enchanting specimens in pink, white, and even marbled colors, along with gloxinia, amaryllis, and cyclamen. Paperwhites will dazzle

your sense of smell as you gaze over the matching wrought iron fence and urns. The large fountain in the center will add the sound of water and tie all the surrounding beds together like a large, holiday bow. Thousands of lights will twinkle, mirroring in the eyes of each visitor.

If you yearn for an authentic Victorian scene, head over to Tower Grove House, Henry Shaw's country home that is located on the grounds of MBG. There you will find the home resplendent in holiday décor, just as it may have been 125 years earlier.

If the warm fuzzies have filled your body, head out for Carols in the Garden where you can join in a delightful winter evening of traditional holiday caroling. Whether you prefer to be kept warm indoors or invigorated by the brisk winter air, MBG's holiday displays and activities suit one and all. Whatever your choice, Happy Holidays from Joe, Tonya, and Lillian, too! ❁

Joe Summers is a Horticulturist with Missouri Botanical Garden. Additionally, Joe is president of the St. Louis Water Gardening Society.



The art staff and many community volunteers work for months to create holiday displays.

CANADIAN SUMMER DREAMS

The Pond of Chee Soh Richmond Hill, Ontario

Photos by Chee Soh

Chee Soh designs ponds and landscapes for her own company, Chee Soh Designs. Her own backyard design is a dream of a pond – gazebo, wrought iron fencing, and a natural integration of rocks and landscape plants, along with a wide selection of aquatic plants, both tropical and hardy. The Lily Pool built the 18x10' pond in 1999. Holding approximately 3200 gallons, Chee uses 2 Titan 1450 pumps and 2 Hozelock Bioforce 2000 UVC filters to keep her water safe and crystal clear for her selection of Koi and goldfish.



Chee grows both tropical and hardy aquatic plants in her Ontario pond.

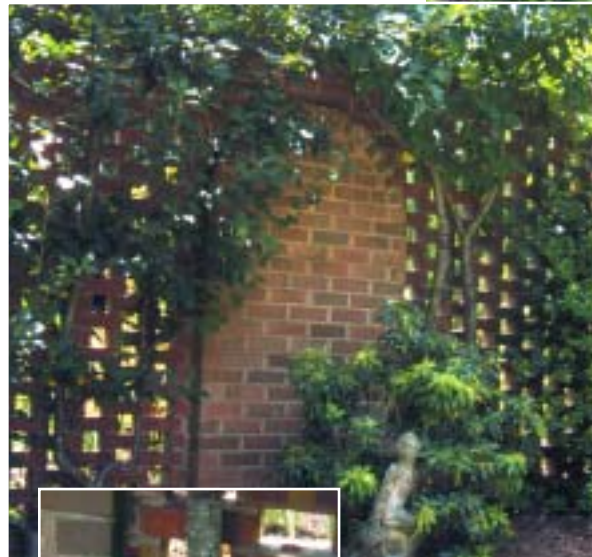


Design Ideas: GARDEN WALLS

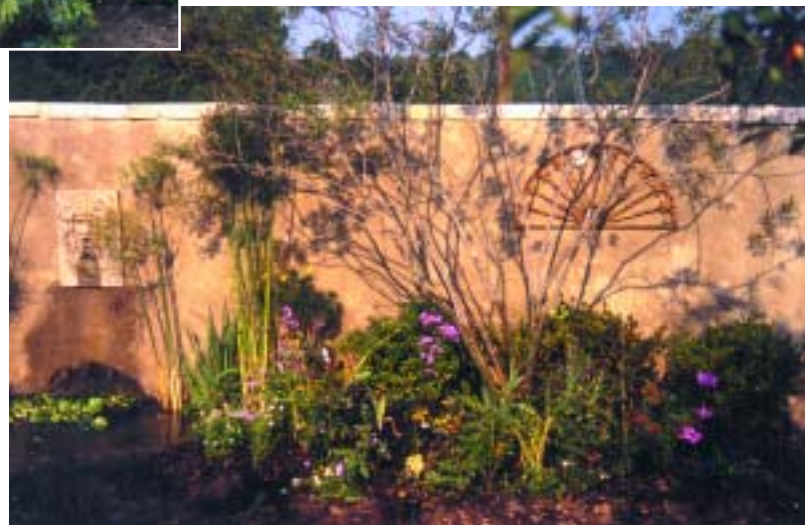
Mystery, romance, safety, privacy, elegance – all reasons to frame your garden with walls. A recent trip to Birmingham, Alabama, produced these intriguing design ideas. ♡



A stucco wall with brick capstones provides the perfect backdrop for espalier-trained vines.



Let the light come through your garden wall with a brick lattice design.



At Aquatic Gardens in Birmingham, you'll find a garden of many rooms created with stucco walls, proving that garden walls are not just for the garden perimeter.



Create elegant interest in your stucco wall with a brick-backed grotto and a flowing fountain.



Even wood can be used to create a garden wall. Inset with lattice windows and adorned with art, the painted fence acquires important function as a wall to your outdoor room.

THE WINTER POND – AROUND THE COUNTRY

How Folks in Your Area Winter Their Ponds

Pacific Northwest

If you live near the Coast where your water lines won't freeze, you can leave your filter operating throughout the winter, but still wrap lines for extra insulation from cold. If you shut down your filter, drain any water lines and leave the drain valves open. Shut down your waterfalls or reroute the plumbing around them. Use a poly tent over the pond or a pond heater to keep a hole open for gas exchanges in ice-forming areas.

Southwest & Southeast

Because your pond water temperatures rarely drop below 45 degrees for any length of time, your main concern is parasites that remain active between 45 and 50 degrees. Watch your fish for the telltale signs of flashing and sores. Monitor your water's temperature to determine any feeding regimen. Remember to feed high-carb foods if temperatures are in the 50 to 55 degree range. Monitor ammonia levels, especially in well-stocked ponds; bio-filtration is slowed at cooler temperatures that can result in gradual buildup of ammonia presence. When testing for ammonia presence, warm the water sample in your hand or bring indoors to warm to room temperature for accurate readings.

Midwest & Northeast

Hopefully, zone 4 folks have a 3 to 4-foot depth (or more) area in the pond for extra winter safety of the fish. Colder zones may employ a combination of methods for winter

pond health – a submersible stock-tank heater on the bottom along with a floating de-icer or double-poly tent over at least a portion of the pond's surface. Shut down filters, waterfalls, and recycling pumps. Ice sculptures are gorgeous but conceal water losses beneath the ice, another way of spelling disaster. Some pondkeepers lay boards across the pond, above the water level, further insulating with bags of dried leaves. (Using straw is an open invitation to mice!)

Shallow ponds of less than 3 feet of depth often merit wintering fish indoors. Zone 5 ponds can usually winter fish safely in 2-foot-deep ponds, but take extra precautions to keep a gas-exchange hole open in the ice. Some folks accomplish this with an air-pump and air-stone. Conflicting advice abounds here. Mike White, president of the Midwest Pond Club, notes in his personal experiments that a bubbler run even at the pond's surface still creates a convection current that chills the water a degree or two colder than desired at the pond's bottom. If you do use a bubbler, be sure it is run in the top one-third of the pond's depth to prevent undue chilling of the depths.

Pond cleanliness is critical. Organic sediments decompose with anaerobic bacterial action and produce fish-toxic hydrogen sulfide. Sedimentary accumulations harbor pathogens and parasites that can attack and harm your fish when their immune systems are essentially dormant. Pond liners with no

Wintering Your Pond continued...

rocks covering them are easily monitored and cleaned; rock-covered pond bottoms conceal organic settlements and need extra attention. If your pond was not power-washed prior to winter, assume potentially toxic conditions exist! A hole left open in the ice ensures the escape of these toxic gases. However, if your pond is maximally stocked with fish (generally an inch of goldfish per square foot of water's surface and half that for Koi), even a hole left open in the ice covering an uncleaned pond may not be enough. Owners of rock-bottomed ponds with too many fish may wish to better the chances of fish-survival by wintering smaller fish indoors, thereby diminishing the pond's fish-loading. (Remember Murphy's Law of Fish Keeping – The fish that dies inevitably is the one you named or the one on which you spent the most money.)

Fish are generally safe under a completely frozen pond for up to a week. This allows plenty of time to properly melt through a hole, if necessary. Avoid fish-dangerous sound wave concussions from breaking the ice. While pond literature suggests melting a hole with a hot tea kettle, in practice, this method may be all but impracticable. Better to set up a floating de-icer to melt its way through the ice layer. Even better is to be prepared in advance.

Besides the poly tents and de-icer units, *ponds that were cleaned in the fall* can resort to rubber balls or sheets of Styrofoam left upon the pond's surface. Leaving stiff reedy plants protruding through the ice allows gas exchanges, too. Rock-bottomed ponds should resort to poly tents and heated de-icers to maintain larger ice-free areas.

Yet another method to prevent ice cover-

age of the pond is to use solar blankets. In colder zones, the use of several blanket layers may be necessary. To rig a solar blanket over the pond, build a wooden frame around the edge of the pond. Use blankets large enough to extend fully across the pond and beyond the wooden frame. Use bricks or stones to hold the blanket in place. If the pond is large enough to allow the blanket to sag onto the water's surface, use long wooden planks across the pond to prevent the blanket's contact with the water. If the blanket sits on the water's surface, you are defeating its purpose as it then prevents any gas exchange with the air above. You'll want to monitor any snow accumulations on the blanket, too. A little snow provides extra insulation. Too much snow weights the blanket to the pond's surface.

Pond owners with small pets should consider their safety, too. A heart-broken reader called last year to warn pondkeepers that small dogs can drown in a lightly ice-covered pond. If this is a concern, consider rigging a temporary fence around the pond for the winter, or cover the pond with boards set above the water level. If anyone, be it human or animal, may be walking in the yard once the snow has turned it into a white expanse, at least "mark" your pond's location with stakes or temporary fencing. The fencing may be especially advised if deer frequent your area. Even large animals have difficulty scrambling up through ice covering two feet of water.

Do *not* feed fish through the occasional balmy spell; resume feeding in the spring *only* after the water's temperature has stabilized *above fifty degrees.*•

NATIVE LANDSCAPING

by JoAnn Gillespie

Landscaping Your Natural Pond

Whether you chose a horticultural or a native landscape for your pond and garden, you can still use plants indigenous to your area. These plants are proven hardy in your region, as well as requiring less maintenance than horticultural varieties.

Native water gardens blend in well with the urban landscape. They bring a touch of country to the overall picture. Native plants can be planted directly into the garden, or they may be containerized. My preferred choice is to create a natural 'lake bed' in the garden so that the plants can be planted permanently. I use a soil mixture of potting soil to sand 3:1. When this bed settles, emplace the plants and cover the top with pea gravel just as you mulch your horticultural garden. Creating a planting shelf in the edge of the water feature also allows for an area of open water.

Water is being used in the commercial landscape, as well. Most industrial parks, shopping malls, apartments, condominiums, and municipal buildings require an area to retain surface water run off. These areas become retention or detention ponds for water storage. Their design is a more intricate matter involving engineers to determine the amount of water to be stored and the size of pond necessary for such storage. Inflow and outflow structures are required. Depth, slope, and shelves are critical to the design.

Because retention ponds must also be attractive, they are often landscaped as wildlife ponds. A bonus is the replacement of wetlands lost by construction.

Although the typical water garden is a garden pool with water, plants, and perhaps a decorative piece of



sculpture, other less-likely opportunities exist – a soggy area in the lawn, for example. These areas can be spots on the lawn that stay wet to the surface of the land or even areas that actually hold water for some time of the year.

To turn these unsightly, unimaginable spots into a lovely garden requires a little ingenuity. A wet spot that remains wet only part of the year could be compared to a wetland type called a wet meadow. The native flowers, grasses and sedges of wet meadows are most attractive. An area of year-round, standing water could be compared to a sedge meadow or a wet meadow. In turning such a site into an attractive garden, it solves the problem of an unsightly spot in your landscape. If 'going natural' appeals to you, you're not out of luck if you don't have such damp-to-wet areas on your property. They can be artificially created, too. Lining a 2-to-3-foot excavation with perforated pond liner and refilling with your desired soil mixture allows you to indulge native aspirations. In future columns we'll take a close look at these special native plants.✿

*JoAnn Gillespie is a respected
wetland consultant from Wisconsin.*

ON CRAWFORD'S POND

by Debbie Mager and Laura Crawford

I was inspired to put in a backyard pond for my two young sons after hearing Helen Nash speak at a Master Gardener meeting. Three years later, I helped my son's 5th grade teacher, Mrs. Crawford, put one in her classroom. We had no idea of the connections it would make for her students with their science lessons.



We started with a 33-gallon preformed pond liner. We brought in aquatic plants, fish, and water from my backyard pond. Plants included water lilies, umbrella palm, miniature cattails, frog bit, frog fruit, rushes, bog bean, water hyacinth, and *Elodea*. After being presented with some facts about basic pond life, the students put the pond together and proceeded to interact with whatever developed.

Our goal was to have the students make observations, design and conduct experiments, and draw conclusions while learning about pond life. One of the delights that came out of the pond was the damselfly. The students observed the larvae crawl up the umbrella palm and transform into the adult stage. Damselflies hung around the pond and



occasionally visited a student's desk.

Seeing is believing. *Elodea* is said to provide oxygen in the water, so an experiment with glass jars was set up to view it first hand. Jars were filled with water, *Elodea* was added, and the jars were turned upside down and placed under a light source. Within half an hour bubbles were observed.

The students were faced with these questions: What were the differences between our pond and an outdoor pond? Why did the frog bit have roots eight inches long outdoors but only one inch long indoors? Which plants were thriving and which ones were dying, and why? As the children recorded their observations, they devised experiments to determine answers. Sometimes results were not conclusive and more experiments were needed.

The students exercised their research skills by putting together posters on the inhabitants of a pond ecosystem: plants, fish, insects, and animals. From there, they launched into the web of life, the energy pyramid, and the water cycle. All of these topics were in their 5th grade science book and, by using the pond as a catalyst, their interest and learning



levels were heightened.

Frogs and a turtle were brought in, and a worm farm was added to the classroom jungle to help feed the new inhabitants. Aphids made an appearance and students brought in ladybug beetles to help control the pests. Our ecosystem grew, and so did the weekly maintenance chores to keep it going. Students were in such competition to be assigned a weekly job that Mrs. Crawford had to keep a list of who helped each week.

News of our pond spread to the 3rd grade, and Mrs. Kitchens decided to install a pond in her classroom in January. Mrs. Crawford's class eagerly learned how to divide the plants



and shared them with the 3rd graders.

Some things went right with the pond, and some things went wrong, but every situation afforded an opportunity to learn. The children actually learned more from the problems than they did from the perfection.

One student who lives on a farm wanted to have a pond for his waterfowl that he raises for 4-H. His dad is digging a pond for him for his birthday, and we will give him plants for it. He is starting his own adventure. He will see what works and what doesn't, and the learning will continue.



Come visit us on Crawford's Pond. We have a web site with pictures of our pond and the students' observations:

<http://www.netusa1.net/~gwmager/Crawfords-pond.html>