



## *The Lily Pad*

### *The Topeka Area Water Garden Society*

**Published Monthly – February to November**

*The objective of the society is to encourage a greater appreciation and interest in water gardening and aquatic plants, to disseminate information about those interests and to help our members stimulate the study and culture of water gardens.*

**Volume 13, Issue 7**

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## **Hardscaping your Landscape**

Part 1 of 2 on ROCKS

Presented By: Brad Minnick - Capitol Concrete Products, Lawrence, KS

*By Mary Weaver*

Brad was raised on a farm in Northern MO and told his parents that farming isn't what he wanted to do. He started working at the age of 15 at a golf course. His career kept him in the golf industry for 20 years working at various courses as a golf superintendent. From there he went to Lawrence and started working with Capitol Concrete, he received a Bachelor's degree in Plant Science and as his career continued with CCP, hardscapes became his specialty.

Brad has worked on various sized projects from small to extreme. An example would be Free State High School & Lawrence High School - both projects included a stadium bleacher section made from Versa-Lock blocks - 130,000 of them!! Versa-Lock has a 50-80 year life time as opposed to concrete which can chip and crack. The block project turned out to be more cost effective than aluminum bleachers. Bob Saathoff said he has been to Free State and it really is an awesome display of what can be done with blocks in a hardscape.

CCP - produces and distributes block only - they do not provide installation nor do they create alternatives for your landscape. Brad commented that if you have a project, it's best to use a landscape architect who knows the principals of engineering in order to achieve the best result. They don't like to make recommendations as to who to use to build your project as it makes them a liability if a customer is not happy with the outcome. He

## **Monthly Meeting**

**7:00 Wed., Sept. 15, 2010**

**Historic Old Prairie Town  
(formerly Ward Meade Park)**

**Uses and properties of natural stone  
Topeka Landscape**

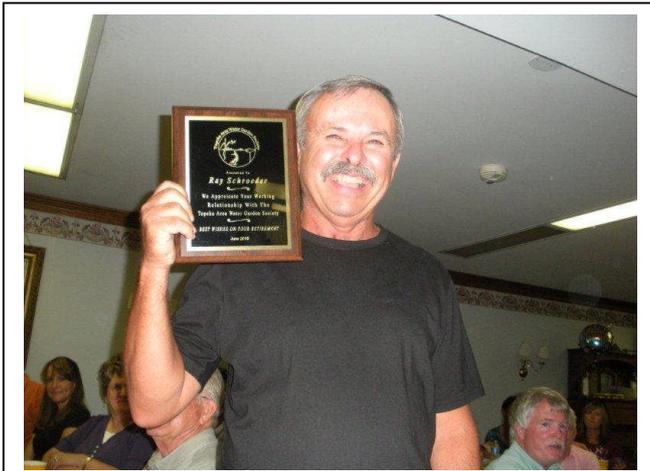
has given advice on some projects in the past however. Every type of brick, block or paver they manufacture is done within a 500 mile radius of Topeka at various locations for the different product. This insures a more timely delivery of your product of choice.

Brad brought several catalogs to share with the group which highlighted all the different types of product they carry and their uses. Many of the product presented mimic natural stone very well. Some are available in stock and some are special order. They try to carry products that have the look, texture, color and feel of the native stone (like limestone) here in Kansas.

Belgard - this company has a number of products ranging from pre-cast outdoor fireplaces to permeable pavers which are used in landscapes to prevent rain runoff and can be used in conjunction with a rain-catching system like we discussed with Kip in our last meeting.

UniLock produces a wet-cast paver which can be produced in many colors and textures to mimic natural limestone.

Brad shared a lot of information and CCP carries everything from a standard brick to large man-made stones with dimensions as large as 2' x 4' x 2'. They also carry everything you need for your hardscape, for instance: Edge Restraint & Tools, Stabilization Fabric, Adhesives, Fire-Pit Kits and Polymeric Sand. Polymeric sand is used between pavers on a sidewalk or driveway and Bob Saathoff said every garage should have a bag of it handy. It is a dry sand-like material that you put between rock or stone....once you have it in place, you wet it down and it seals like concrete to prevent weeds and ants from permeating the area. It stays somewhat pliable to accommodate for shifting, however, it adheres to the block to alleviate gaps.



Ray Schroeder shows off the plaque from TAWGS that Floyd Gruver presented to him at Ray's Retirement Party. Floyd suggested that the city rename the Botanical Gardens "Ray Schroeder's Botanical Gardens" since Ray has spent over 40 years working on the gardens. Several TAWGS members enjoyed the good food and fellowship at the party which was held August 6<sup>th</sup>.

white and start to peel off. If caught in time they will regenerate their protective coating and the old damaged areas will start to break off and wash away. If no steps are taken to address the problem your fish can develop blisters, ulcers, and open wounds that can lead to pain or infection. If you do notice a bit of sun damage on your fish you should quickly assess your pond's layout and investigate the possible causes of why your fish are being over exposed. Add shade where necessary or if you see that one or a couple of your fish keep surfacing in the shallower areas of your ponds, section them off in deeper areas that are abundant in shade until their protective coating heals. If blisters or sores develop, treat the effected fish with an Antifungal/Bacteria treatment like MelaFix, PimaFix, or TetraPond Fish Treatment.

Always take into consideration the environment your fish are exposed to and adjust as necessary to keep them comfortable. Your fish will enjoy the sunny warm weather quite readily which provides great opportunities to play and interact with your pets. Occasionally checking in on your finned friends and reacting to their needs will keep them healthy, happy, and safe this summer.

## Can koi get sunburns

Reprinted from 8-14-10 *The Pond Guy*



Now that beach season here it is time to venture out into the great outdoors and soak in some of that summer sun. You can safely bet your koi will be doing the same, as they love the sunshine and can be found sunning themselves in the shallows of your pond. Unlike us, however, they can't lather on the sunscreen. So what can you do to make sure they don't overindulge and end up with a sunburn?

Koi can get sunburnt? That's right, your koi can burn if overexposed to the sun. Some koi will loiter close to the surface in your pond or in shallow areas that leave their backs very close to the surface of or, at times, partially out the water. This is the most common reason why your fish tend to experience sun damage. Another less common contributing factor is the lack of shade and cover from sun exposure. Some pond owners do not provide any floating plants, shaded areas, or recessed areas for fish to hide within in instances of intense sun which leaves them completely exposed. If your pond receives direct sunlight throughout the day, make sure you provide adequate habitat to protect your pets. You can also add some pond shade to limit the amount of UV light that is able to penetrate the surface of the pond. A great way to prevent burns, illness, and parasites in your pond is to dose the water with pond salt. Pond salt will improve the slime coat on your fish and improve their gill function which protects them from illness and exposure to the elements.

When your fish are over exposed to the sun and outside elements you will notice their slime coat will turn

## Moisture loving plants

by Duane Van Dolah

### Dallas Blues Switch Grass



#### *Panicum Virgatum*

By Duane VanDolah

Ok! It took me by surprise too. What caught my eye was the beautiful blue color of its leaves. When I read the plant tag on the plant I bought this spring, there it was. It said for growing in average-to-moist soil. Another plant for my monthly article, but Switch grass?

Before I go further I want to tell you that I have planted it in front of my house with some of my other grasses. Since this spring it has grown in a mulched flowerbed to a height of 3 feet, with flower heads another 2 feet. A total of 16 stalks have grown from the clump it has formed. Farmers that have come to see my yard can't believe the plants that are cultivated for ornamental use are sometimes weeds in their fields to exterminate. I've posted guards to protect my Switch grass. The 'Dallas Blues Switch Grass' was found in Dallas, Texas, and is a patent cultivar. It is appropriate for rain, water and bog gardens. The grass forms an upright, vase-like clump and will get 6-8 feet tall and has a clump to 4 feet wide. The leaves are up to 24 inches long and 3/8 of an inch wide. The leaves and stems are a bluish, gray green and develops large flower plumes 22 inches long, rosy-purple in color. This happens in late summer into early fall. In the fall the grass turns a tan to coppery color. It thrives in zones 4-9 in medium-to-moist soils. Full sun will keep the grass from getting a loose form and from flopping down, so

the grass should not be planted in too much shade. It is fast growing. In full sun it will hold up to rain and snow.

The grass is good as a specimen or for mass planting. Highly deer resistant and a bio-fuel source, it should be cut back to the ground in late winter to early spring. Propagation is by seed and division.

## Refreshments for 2010

Sept.	Ed & Linda Klem
Oct.	Floyd & Diane Gruver
Nov.	Pot Luck

## Where Did All The O2 Go

by David Jones, Master KHA  
Reprinted from 8-10 Water Works

Whether you have a big koi pond filled with show stoppers or something more modest, the main ingredient-water- needs some extra attention during these hot summer days. A "Red Flag" should go up for any fish keeper as air temperatures hover at the century mark, and pond temperatures reach 85° F. Higher temperatures create changes in water parameters; the most troubling are swings in the amount of Dissolved Oxygen (D.O.) in the water which can become life threatening for our fish. Let's review some back-ground facts about D.O. and some ways to improve our ponds level of quality during summer.

Maximum D.O. is dependent on water temperature and atmospheric pressure. Here are some numbers to put it in perspective: The air that we breathe has 21% oxygen, which translates to 210,000 parts per million (ppm). As the atmospheric air presses down on the surface of our ponds, only a miniscule amount of oxygen diffuses into the water to become dissolved (DO) in the water. At a pond temperature of 50°F, oxygen saturation is 11.5 ppm, at 70°F it's 9.0 ppm, and at 90°F, the most oxygen that water can take up is 7.5 ppm. In reality, as the pond goes through its diurnal cycle (daylight/dark), D.O. amounts are less. The dilemma here is that warmer water can't hold as much oxygen, but the fish and other pond organisms need more oxygen due to higher metabolism. Here is the D.O. "User Group" that take oxygen out of the pond:

- Higher water temperatures cause fish to have a higher metabolism, be more active, eat more food, create more solid waste and ammonia, and grow more. Their need for more O2 is - 24/7.
- Nitrifying bacteria in the biofilter use O2 during the conversion of ammonia into nitrates. - 24/7.
- Biological Oxygen Demand (BOD) - O2 to feed the bacteria that break down mulm, uneaten food, fish slime coat, decaying plant and algae materials, feces and other solid waste. - 24/7.
- The "respiration" process of photosynthesis in plants and algae consumes lots of O2 at night.
- Overcast weather, thunderstorms and other "Low Pressure" events decrease D.O. - Any time.

Looking over that summary, you can see that most of the pond's oxygen demand is steady over 24 hours. However, the high oxygen demand of plants and algae during darkness will create a significant low in D.O.

in the early morning. In fact, oxygen starvation on summer mornings is a leading cause of fish deaths. So, to be good fish keepers, we must add oxygen to our ponds to supplement that provided by the atmosphere. The most effective way to do this is to stir up the water to provide more interaction between the air and the water - just like nature does with wind and waves.

Here are some man made and "natural" ways that add D.O. to a pond:

- Design elements such as pond surface area, waterfalls, streams, trickle and shower filters, spray bars, venturis, fountains, and anything that brings water molecules in contact with the air. 24/7.
- Pumped air through airstones, diffusers, and air lifts brings deeper water to the surface. 24/7.
- The process of Photosynthesis in plants and algae produces O2, but only during daylight hours.
- Clear skies and "High Pressure" atmospheric conditions. Mostly good weather during summer.

Yes, we can and must use all possible means to add D.O. to the pond, but we still have to be aware of the possibility of very low D.O. in the early morning. How can we tell if our pond is about to run low on oxygen? We can measure D.O. with a test kit or meter, or we can observe the fish for abnormal behavior. Our fish get stressed when D.O. is low-they may not eat, they may show red streaks in their fins, they may have their mouths open and gill covers flared and spend more time at the surface and near the waterfall-the only areas where D.O. is higher in the morning, then return to deeper water as photosynthesis increases D.O. later in the day. If you see these behaviors-your D.O. may be borderline.

How much oxygen do our fish need? Well, the more oxygen in the water, the happier and healthier your koi will be. Although they can survive for periods at lower levels, approximately 5 ppm is considered a minimal level for D.O. It should also be noted that a koi's gill can only extract about 80% of available O2. Now that we have all the background material, think about this possible scenario in your pond. It's the peak of summer, the water is 85°F. There have been several overcast days, which have cut down on photosynthesis. The pond is slightly overstocked, and the fish are off their feed a little-maybe it's the heat. It's been a couple of weeks since you flushed your filter or backwashed your Bubble Bead, but you plan to do that and a water change next weekend. Your waterfall and aeration are working fine. The TV weatherman is calling for possible thunderstorms and a low pressure front passing though during the night. When you wake up in the morning, the electricity is off. The storm knocked out a transformer and you've had no electricity for 3 hours. You look out at the pond and see a sickening sight-a few koi are floating, the others are gasping at the surface. Oxygen Starvation! What happened here?

- Cloudy days diminished O2 production from photosynthesis, creating a reduced D.O. situation.
- The stocking density was too high! Too many fish competing for insufficient D.O.
- Overdue maintenance let sludge and mulm build up in the pond/filters - creating a higher B.O.D.

- Koi off their food or acting different is a sign of stress-a possible harbinger of chronic low D.O.
- Power went out when D.O. was lowest- need emergency generator or backup battery air supply. What could you have done differently? Consider these measures to avoid running out of O2:
- No overcrowding! Keep fish levels realistic, reduce your numbers.
- Reduce B.O.D. by keeping everything clean. Keep a watchful eye on fish behavior, especially during overcast, stormy, or low pressure days.
- Add more filtration and aeration with a trickle tower or shower filter. They add lots of O2.
- Have some sort of automatic emergency power-a generator or batteries running air pumps.
- Be aware that treatments with Formalin or PP will reduce D.O. Even salt does to a lesser degree.

As an emergency measure, you can add Hydrogen Peroxide (3%) at a rate of 1 quart per 1000 gallons. It's H2O2 which is water with an extra oxygen molecule. Avoid direct contact with fish when spreading around the pond full strength, or dilute first. The additional oxygen effects of H2O2 last up to 4 hours.

Summary: Through the effects of photosynthesis, the amount of D.O. in ponds is a bell shaped curve with the maximum amount at dusk, and the least amount at dawn. Keep your pond clean. Maximize aeration. Watch your fish - changes in behavior can be the tipoff for low D.O. Have an emergency plan. Best wishes to your fishes Increasing the amount of oxygen in the water is the BEST thing you can do for your fish

## TAWGS Minutes 8-18-2010

President Don Taliaferro called the August meeting to order at 7:00 with self introductions.

Bob Saathoff introduced Brad Minnick from Capitol Concrete as our speaker for the evening on the topic of Hardscaping your Landscaping.

Refreshments, delicious Greek treats, were provided by Tom and Helen Platis. They were enjoyed by all and we thank them very much.

Mary Weaver made a motion to approve the minutes of our July meeting as written in the Lily Pad. Jim Green seconded, motion carried.

Treasurer, Jim Green, reported that we have \$3,433.69 in the bank, but after he makes out a \$2,000 check for the Parks & Recreation Foundation, we will have \$1,433.69. Duane Eberhardt made a motion to approve the treasurers report. Tom Platis seconded. Motion carried.

Don Taliaferro asked if anyone wanted to volunteer to be chairman of the Pond Tour next year and/or the Lawn and Garden show. We will discuss this at the next meeting as we had no volunteers.

Tom Platis passed around a sign-up sheet for the Apple Fest on Sunday, October 3<sup>rd</sup> at Old Prairie Town.

Mary Weaver reported that last Saturday, 8-14-10, was the first work day at Old Prairie Town that our group volunteered to help take care of. Mary said they did some weeding and trimming. Every Saturday anyone can come starting at 7:30 a.m., and bring whatever garden tools they

think might be needed.

Mary suggested that we set up a date where some major work could be done on Anna's Pond.

Ray Schroeder thanked everyone who came to his retirement party. Rey reported that Gage Park wants to work on the area below the Carousel before the rock garden project. There will be more information on this later.

Cheryl Saathoff made a motion to adjourn the meeting and Tom Platis seconded. Motion carried.  
Sandy Regier, Secretary

## Pond Tip

You should stop feeding your aquatic plants about a month before the first frost in your area. Even in areas that don't normally have frost, plant growth slows in the shorter, cooler days of the fall and winter months.

# Water Changes are important

*David Jones, KHA*

Reprinted from July, 2010 Water Works

The secret to improving the health and appearance of your pond is to do a small water change every week. You probably realize that fish waste, wind blown debris, dead plant materials, and other organic matter are continually accumulating in your pond. As this material decays, it creates toxins which can lead to stress and illness in your fish, and give a yellowish brown tinge to the water. You can minimize these problems by doing regular water changes to flush away the toxins from your pond.

One of the joys of being a pond keeper is feeding your fish and watching them grow. However, many overfeed their fish, so besides the fish creating more waste, some uneaten fish food will go to the bottom and start decaying. Many people think that fish waste is taken care of by their biofilter. That's only partially correct. Fish waste can be divided into two components- ammonia which is largely excreted from the gills and feces which is the solid waste. The circulating pump carries the ammonia to the biofilter where it is converted into nitrite then nitrate. Nitrate can be used by plants and algae as a nutrient, but any excess nitrate will accumulate as a toxin. The solid waste falls to the bottom of the pond along with decaying plants and algae and other organic matter such as leaves, pollen, and dust. If you have a bottom drain, this combination of ingredients (mulm) is carried to the settlement area in your filter and must be emptied regularly. If you do not have a bottom drain, then the mulm sits on the bottom and is decomposed by heterotrophic bacteria (*Pseudomonas/Aeromonas*) by a process known as mineralization. While these bacteria are present in all

ponds, those with lots of mulm will have large colonies which can infect your fish with "Hole in the Side Disease."

Decomposed materials are called Dissolved Organic Compounds (DOCs). These toxins discolor the water to a yellowish brown tinge, and often cause bubbles and foam around the waterfall. To summarize our situation, we have excess mulm and excess dissolved toxins; we can improve both of these conditions by doing water changes. To be sure that there is no misunderstanding, I want to define what is meant by "water change." When a couple of inches of water evaporate during the heat of summer, the water molecules have evaporated but the Mulm and DOCs are still in the pond. So if you top off your pond thinking you are doing a water change-you are not. The water containing the mulm and DOCs must be removed from the pond and replaced with fresh water in order to reduce the toxins. Using the expression - "The Solution to Pollution is Dilution" as our guide, we must reduce toxins by diluting them with routine water changes. For ponds with bottom drains leading to a settlement area in the biofilter, you can easily do water changes by draining the settlement chamber and flushing pond water through the bottom drain until the desired amount has been drained. For ponds without bottom drains the process requires a pump. I encourage the pond owner to purchase a submersible sump pump. These pumps come in various sizes, I have one that pumps about 1200 gpm; it has a long cord, a handle on top to which I have attached a rope. The pump's outlet has a fitting to connect a garden hose. This last feature is very important because it allows me to water my flower beds and vegetable garden with the old water. I use the rope to lower the pump into the pond and to move it around on the bottom to suck up the mulm. Using a hose end sprayer, you can control the speed and amount of the emptying. On a weekly basis, it would be a good goal to change out 10% of the pond volume. If there is a lot of mulm, or if you have algae problems, or if the water is quite tea colored, change out 20% for a while, then go down to 10% when clarity improves. When activity in the pond slows down in the cooler months, you can reduce changes to every other week, but keep in mind that even in the winter, toxins are still accumulating.

Suppose your pond is 3,000 gallons and you want to do a 10% water change. You need to determine how many gallons are in each inch of water. If the surface is 8 X 12 feet, your surface area is 96 sq. ft. Multiply that by 144 to get the surface area in square inches = 13,824. Divide that by 231 which is the number of cubic inches in a gallon and you get almost 59 gallons for each inch of depth at the surface. So if the goal is to change out 300 gallons (10% of 3000), you divide 300 by 59 to give the amount of water to drain  $(300/59) = 5$  inches of water. Lower the water level 5 inches and get ready

to fill 'er up!

On a final note, here are some reasons for always using a dechlorinator, and some caveats about adding water. Most all public water supplies contain chloramines as a disinfectant. It kills bacteria in the water to protect us from disease. It also kills the good bacteria in your pond and is VERY harmful to fish. It burns their gills and makes it difficult for them to breathe. Most pond wipeouts come from adding too much water without a dechlorinator. To be safe, I recommend that you always use one unless you're only adding an inch or so to your pond. When you buy a dechlorinator, be sure it says that it neutralizes chloramines on the label and use the recommended dosage for the number of gallons you are adding. To be safe, I also add the dechlorinator before adding the water! I mentioned above that chloramines are harmful to fish and the good bacteria in your pond. So, to protect them from a chloramine overdose, use a wide dispersion sprayer so that the new water is spread out around the pond, and not concentrated in one area-this is especially important to prevent new water going directly into the pump pickup area leading to your filter. Don't get distracted during this time, use a timer or shut off valve to prevent "fish kill overfill."

A final thought about improving your water. Ponds with rocks on the bottom tend to accumulate more mulm. It's impossible to keep this kind of pond as clean as a bare bottom pond with a bottom drain-so you have to go to "plan B." This entails the regular use of a pond enzyme to help break down the sludge. Microbe-Lift PL and Pond Pig-Out are two that work well. These enzymes will benefit any pond, but are an absolute necessity on ponds with stones or no bottom drain. Routine use of enzymes plus weekly water changes will really improve the health and sparkle of your water. Best wishes to your fishes.

#### **Time to start thinking about netting your pond**



**As shorter days and cooler temperatures arrive the leaves will begin to fall. Floyd uses PVC pipe to make a frame for our pond net. Keeping leaves out will help a lot when you clean your pond in the spring.**

Topeka Area Water Garden Society  
9900 SW K-4 Highway  
Topeka, KS 66614

### Calendar of Events

Sept. 15 – Monthly TAWGS Meeting  
Oct. 3 – Apple Fest  
Oct. 20 – Monthly TAWGS Meeting  
Nov. 17 – Monthly TAWGS Meeting

### Work Days

**Mary Weaver is heading a group to help with weeding, etc. at Ward Meade Park. Please meet her at WMP at 7:30 a.m. on Saturdays if you can help out.**

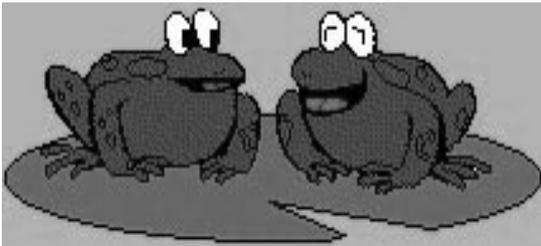
**Julie Trowbridge is asking for volunteers at the Ted Ensley Gardens at Lake Shawnee. Work days are Tuesday's and Thursday's. Meet at the covered bridge 9:00 – 11:30.**

**Your Dues are Due if your label reads 6-10, 7-10, 8-10 or 9-10**  
Please renew as soon as possible to continue receiving the newsletter.  
Send dues to Jim Green, 5701 SW Arrowhead CT, Topeka, KS 66614

### THE TOPEKA AREA WATER GARDEN SOCIETY 2010 OFFICERS:

Don Taliaferro Topeka	President 785-272-8348
Bob Saathoff Topeka	Vice President 785-272-7125
Sandy Regier Topeka	Secretary 785-286-9998
Jim Green Topeka	Treasurer 785-272-7139

Meetings are held the third Wednesday of each month at Old Prairie Town (Ward Meade Park) unless otherwise publicized. Dues are \$15 per single or \$20 per family and can be sent to Jim Green, 5701 SW Arrowhead CT, Topeka, KS 66614.



Check it out - [www.tawgs.org](http://www.tawgs.org)

### The Lily Pad

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The Lily Pad encourages submission of articles pertaining to water gardening from the membership and other interested parties. Deadline is the third weekend of each month. Address input and/or questions to:

Diane Gruver, The Lily Pad Editor  
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785-364-3046

[fdgruver@embarqmail.com](mailto:fdgruver@embarqmail.com)

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