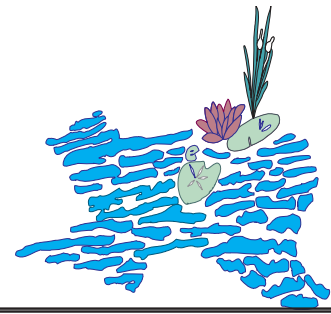


Water Works



Newsletter of the North Texas Water Garden Society

September, 2007

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Where Did All The O2 Go?

By David Jones, Master KHA

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 85F. 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 water can improve our pond level 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 amount of oxygen becomes climatesce of our ponds, only a very small amount of oxygen becomes dissolved (DO) in the wa D.O. At a pond temperature of 50F, oxygen saturation is 11.5 ppm, at 70F it's 9.0 ppm, and at 90F, 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

See O2, continued on Page 3

September Meeting
Tuesday, September 11, 2007
7:00 PM

Clair Ossian
Water Lilies and Lotus in
Ancient Egypt

Dallas Water Utilities
Building, 8915 Adlora Lane,
Dallas, TX. Mapsco 27T



Water Works

Water Works is published monthly by the North Texas Water Garden Society.

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The North Texas Water Garden Society is a non-profit organization with the following objectives: To encourage a greater appreciation of and interest in water gardens; to disseminate information of interest and help to the members; and to stimulate the study and culture of aquatic plants, fish and ponds.

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The Water Garden's Tip of the Week

Do you have trouble with fish rooting around in the soil of the potted plants in your pond? Fish, especially koi, will root in the soil and make a mess as well as uproot some plants. If you have had this occur, try placing potato-sized cobblestones on top of the gravel or aquatic potting media to discourage this behavior.

President's Pad

Last October, I moved my plants and fish into three temporary tanks and filled in my pond with dirt to make room for a new larger pond. Since I am a do-it-yourself kind of guy, I think the actual construction of my pond is fun and I earn the satisfaction of saying "I did it myself." I began digging my new pond by hand last fall but was soon interrupted due to trips out of state for the holidays. After the new year, I did not get a chance to resume digging because of unrelenting rains. North Texas had one of the wettest springs on record and the rains lasted well into the summer. The only thing that I could do was pump the water out of the hole over and over.

Now that all the uncharacteristic rain has subsided, and the heat is cooling down, it is once again time to start working on my pond. The other day, I went out into my backyard to look around and take a few measurements to gage my previous progress. I was not happy with what I found. The sides of the pond had caved in due to all the rain and Bermuda grass was growing in the bottom of the pond! I measured the depth of the pond and I became dismayed. I had much more digging to do and I have learned that I do not like to dig in heavy clay soil. Depending on the weather, it would take me months of digging to get the pond to final grade. I briefly considered hiring a couple of day laborers to help me dig, but after seeing power equipment for rent at Home Depot, I realized that power equipment would be much faster and less expensive.

I decided to rent a piece of power equipment such as a mini excavator or mini backhoe. I went to several equipment rental companies but most would not let me pull the equipment home because my truck is not a ¾ ton. The rental price was reasonable but there were several charges tacked on such as delivery charges each way, fuel surcharges, trailer rental and insurance that almost doubled the rate.

I was speaking with a friend the other day and I mentioned that I was looking at renting a mini backhoe to finish digging my pond. She called me back the next day and said that she knew a man who had a Bobcat who would finish digging out my pond for a reasonable price and it would only take about a couple of hours.

Plan B. I need to make room for a Bobcat in my backyard! This will require me to remove a fence panel, move a pile of boulders and move my fish tanks out of harms way. I also need to move a few shrubs that I plan to keep. It looks like I will be very busy in the coming days. All this sounds fun...doesn't it?

Joe Copeland
President,
North Texas Water Garden Society

NTWGS Membership Information

Join the North Texas Water Garden Society.
Membership fees are:

Single Membership (per year) \$15.00
Family Membership (per year) \$24.00

Make your check payable to the North Texas Water Garden Society and send your name, address, phone number and information to:

NTWGS
Post Office Box 9127
Dallas, Texas 75209-9127

See O² continued from Page 1

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 85F. 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. orcast, llyye on fish behavior.

- 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 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 tip off 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!

NTWGS Pond Cleanup Project, September 8

Opening day of the State Fair of Texas is just around the corner. The Texas Discovery Gardens will soon be training volunteers in preparation for an onslaught of visitors. The NTWGS also has business to take care of before the fair opens. The NTWGS maintains the Leftwich Reflecting Pool at the Texas Discovery Gardens. We want this pond to look great for all the fair visitors to enjoy. It needs to be tidied up and the lilies need to be fertilized so the pond will be bursting with color when the fair opens.

The Texas Discovery Gardens Pond Cleanup Project is scheduled for September 8, 9:00 till Noon. This is a very casual event and you will more than likely get your clothes dirty. Wear gardening attire and bring waders, sandals or beach shoes.

The Texas Discovery Gardens is located in historic Fair Park next to the Texas Star Ferris Wheel. Drive around to the back of the gardens and park inside the gate at the greenhouse. Enter the gardens by the greenhouse and proceed toward the main building. We will meet at the Leftwich Reflecting Pool at 9:00 A.M. rain or shine. We will only cancel if the weather is dangerous.

The NTWGS will provide cool drinking water and plenty of water garden tales. Each NTWGS member who participates will earn a free NTWGS T-shirt or hat. If you have any questions, please send an email to projects@ntwgs.org or call 972.994.1140. The NTWGS needs your help to make this project a success.

Key To A Low-Maintenance Water Garden

by Randall Tate, Chief Manager, The Water Garden

If you ask most new water gardeners what they like best about their pond, you are likely to get many different answers; the fish, the plants, the sound of the water, the wildlife, the private oasis, and so on. But if you ask them what they like least about the pond, you will usually hear “maintenance” or “cleaning the filter”. Water gardening is supposed to be relaxing, and with a pond that has been set-up well it is a most rewarding hobby.

So there is the key to a low-maintenance water garden; it must be set-up well. There are 5 main areas of focus when trying to get this low-maintenance pond: pump, mechanical filtration, biological filtration, fish, and plants. We will now discuss each of these in more detail:

Pump

The pump is the backbone of a water garden. It provides the beauty and sound of moving water as well as circulating the water as a means of providing aeration and pushing water through a filter system. The primary factor in choosing a pump is to find one that will provide the desired visual effect over a waterfall, spray fountain, or spitter. But, you also need to size your pump for the pond and filtration. For simple aeration and circulation, the pump should circulate a minimum of half of your total pond volume per hour. A 1,000 gallon pond needs a pump that will move at least 500 Gallons Per Hour (GPH). You also want to make sure your pump adheres to any minimum/maximum requirements with any of your filters or other equipment.

Mechanical Filtration

Mechanical filtration can take several forms. For a small pond of one to two hundred gallons this is most often a small in-pond filter that contains a sponge or similar material. While this will work well in trapping small particles because of the small pore size it soon stops up. You may find that you need to clean this filter every few days to keep your water flowing and your pump from burning up. Larger ponds of a few hundred gallons may use a larger type of in-pond filter. These often use a more open cell sponge or a fiber type of filter media. This type of filter media is a good material for this size pond as it does a good job of trapping larger particulate while also allowing good water flow giving you more time between cleaning.

For many ponds, a skimmer is the best method of providing mechanical filtration. Some skimmers will only trap debris larger than 1/4 inch or so. The better skimmers

See Key, continued on Page 5

The Edible Pond and Bog Garden

Rich Morris

The following list contains many plants, most of them either natives of Britain or naturalized here, that can be grown in ponds or boggy ground. They are all perennials and, unless otherwise stated, can be easily propagated by seed or by division in spring or autumn. We hope you will agree that there is a tremendous potential for food production from ponds and boggy areas.

If your garden already contains an area of very wet soil that you've never been able to do much with, then this article will give you some ideas.

Acorus calamus—Sweet Flag: A native of Europe, naturalized in Britain, grows on the shallow edges of ponds and in most soils. The rhizomes, harvested in autumn or spring, are edible and can be used as a substitute for ginger, cinnamon or nutmeg. In the past rhizomes were candied and used as a sweetmeat. The inner portion of young stems can be eaten raw and young leaves can be eaten cooked. Other virtues of this plant include its mature leaves, which are insect repellent; the lower stem and rhizome, which can be dried and used to scent clothes, cupboards, etc., and an essential oil which can be extracted from the rhizome.

Aponogeton distachyos—Cape Pondweed: A native of South Africa, this plant is often grown in ornamental ponds and is occasionally found naturalized in Britain. It does best in water from 6" to 2' and prefers a rich soil. The tubers are edible as are the flowering spikes which can be used as a substitute for spinach.

Beckmannia eruciformis: A native of Europe and Asia, this grass grows in wet meadows, swamps, marshes and very shallow water. The seed is edible, ground and used as a flour.

Butomus umbellatus—Flowering Rush: A native of Britain, it grows in moist soil or water up to 1'. The tubers, which contain over 50% starch, are edible when cooked. The seed is also edible.

Chrysosplenium alternifolium and *C. oppositifolium*—Golden Saxifrage: Native of Britain, they grow in wet meadows and swamps, and prefer a shady position. The leaves are edible raw or cooked.

Cornus canadensis—Creeping Dogwood: A native of North America, this is a low-growing creeping plant. It does well on the drier edges of the bog garden, but it strongly dislikes chalky soils. The fruit is edible; it is said to have a pleasant though not very strong flavor.

Cyperus longus—Galangale: A native of Britain, it grows in ditches and marshy soils. The root is edible and it can be used as a spice.

Glyceria fluitans—Float Grass: A native of Britain, it grows in shallow pond margins. The seed is sweet and is used in puddings.

Gunnera tinctoria—A native of Chile, this plant looks like an overgrown rhubarb and, in sheltered positions and moist soils, the stem can be five feet tall and the leaf a yard or more across. Although they don't look tremendously appetizing, the leaf stalks are said to be edible. Probably best when young.

Nasturtium officinale—Watercress: A native of Britain, this is the familiar salad plant for sale in groceries. It prefers growing in very shallow water (about two inches deep) but can also be found in marshy soils. It should be propagated by seed or by cuttings which will root easily and quickly in a container of water at any time of the growing season. Its leaves are edible and its seeds may be used as a substitute for mustard.

Nuphar lutea—Yellow Water Lily: A native of Britain, it grows in water between one and two feet deep, preferring a sunny position. The roots are edible either raw or cooked, the leaf stalks may also be eaten, and a drink can be made from the flowers. Two allied species from North America, *N. advena* and *N. polysepala*, are often grown in ornamental ponds and they can be used in similar ways. In addition the seeds are edible, and can be ground up and used as thickeners in soups. This would suggest that the needs of *N. lutea* could also be used, but we have not found any references to this.

Nymphaea alba—White Water Lily: A native of Britain, it grows in the deeper parts of the pond; about four feet of water should suit it well. It prefers a sunny position and a rich soil. Rootstocks that are several years old may be eaten—they contain about 40% starch. Roasted seeds may be used as a coffee substitute. A related species from North America, *N. odorata*, can also be found in ornamental ponds. Its young leaves and flower buds can be eaten cooked, and young flowers can be eaten raw.

Peltandra alba and *P. virginica*—White Arrow Arum and Green Arrow Arum: Natives of North America, they grow in shallow water near the pond edges. Their rhizomes are edible but they must be well cooked, since they are both poisonous when raw.

Phragmites communis—Common Reed: A native of Britain, this member of the grass family grows in shallow waters and wet soils. It can grow to 12' tall and is very invasive, so it is not really for the smaller garden. It more than makes up for its antisocial tendencies with its quite impressive list of uses. The roots which contain 5% sugar, are edible and can be dried, ground coarsely and used as a porridge. The young shoots can be eaten raw or cooked and the seed is also edible. If the stem is wounded, it exudes a sugary substance which hardens upon exposure to the air. This can be eaten raw or roasted. The dried and ground inner stem can even be moistened and then roasted to make a marshmallow substitute. Other virtues of

this plant include the stems for thatching, basket making, and a green dye that can be obtained from the stems.

Pontederia cordata—A native of North America, it grows in pond margins and marshy soils, though it is happiest in water about six inches to 1' deep. The seeds can be eaten raw or ground up and used as a flour substitute. Young leafstalks can be eaten raw or cooked.

Sagittaria sagittifolia—Arrow Head: A native of Britain, it grows in water up to 1½' deep. Its tuber can be cooked and eaten and is much cultivated in China for this purpose.

Samolus valerandi—Brookweed: A native of Britain, it grows in wet soil and shallow water. The young leaves can be eaten raw or cooked.

Scirpus lacustris—Bulrush: A native of Britain, it grows in bogs or shallow pond margins. The roots are edible and can be eaten raw or dried, or ground and used as flour. The young shoots in spring are also edible. The leaves can be used in weaving for making mats, chair seats, etc.

Sparganium erectum—Bur-Reed: A native of Britain, it grows in marshes, ditches and shallow edges of ponds, requiring a rich soil if it is to do well. The tuber is edible.

Trapa natans—Water Chestnut: A native of Asia and the Mediterranean, this plant is hardy in all but the coldest parts of Britain and it grows in water up to 2' deep. Its seed, which is about 50% starch, can be eaten raw, cooked or dried and ground into flour. It is often cultivated for its seed in Asia. Propagation is by seed only.

Typha angustifolia and *T. latifolia*—Small Reed Mace and Reed Mace: Natives of Britain, and grown in pond margins, these plants are an absolute must for any self-respecting vegan. Make sure that you've got the room for them, though, because they are very invasive (especially *T. latifolia*) and will soon overrun most of your other plants if you don't keep an eye on them. Their catalogue of uses is most impressive and just why they are not used commercially is beyond us. Their rhizome is edible raw, cooked or dried and ground into flour. Young shoots can be eaten raw or used as an asparagus substitute. The base of more mature stems can be eaten raw or cooked (but remove the outer covering). The seeds are edible and, when roasted, are said to have a pleasant, nutty flavor. An edible oil can be extracted from the seed. The pollen, which is a good source of protein, can be added to flour, and the young flowering spikes can be cooked and eaten. And if all that was not enough, the leaves can be used in weaving to make hats and mats, and the hairs on the fruits can be used as a stuffing material for pillows. The stems are used in paper making and the dried flowers make a

See Edible, continued on Page 5

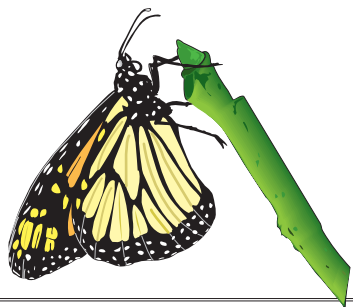
Edible, continued from Page 3

good insulating material. It's quite wonderful, isn't it?!

Vaccinium palustre—Small Cranberry: A native of Britain, this is a prostrate shrub that grows on acid, boggy soils and strongly dislikes chalky soils. Propagation is by seed or by laying the stems in spring. The fruit is edible and is held by some to be the most delicious of our native wild fruits. A tea can be made from the dried leaves, a red dye is obtained from the fruits, and the juice of the fruit is a very effective cleaner for your family silver. A closely related shrub, *V. macrocarpon*, is a native of North America where it is widely cultivated for its fruit. It too can be grown in the bog garden.

Zizania latifolia: A native of East Asia, this plant is often grown in Britain on the shallow margins of lakes. It is often cultivated as a food plant in Asia, and it has edible rhizomes, young shoots and stem bases. The seed is also edible but, unfortunately, although it is perfectly hardy in Britain, it does not flower there, spreading instead by vegetative means. A close relative of this plant, *Zizania aquatica*, is the wild rice plant whose horrendously expensive seeds can be seen for sale in health food shops. The plant is an annual, native of North America and, although it should be perfectly hardy, we know of no source of viable seed (seed in the shops has been heat-treated and does not germinate). If you can get hold of some viable seed, you could give it a try in the shallow pond margins. It dislikes stagnant water and does best in a very slow moving current.

Reflections, January/February, 1998
(Wabash Valley Water Garden Society)

**Seasonal Butterfly House**

"Skies of Butterflies"

September 15 to October 22, 2007

Visit Texas Discovery Gardens' seasonal Butterfly House and be immersed in a magical world of color and motion as native Texas Butterflies fly, feed and rest in a beautiful screened garden of flowering plants.

Key, continued from Page 3

will also provide fiber media to also trap smaller debris while making it convenient to clean. A skimmer will not only filter out debris that is suspended in the water, it will also trap a large portion of floating debris that has blown into the pond and has fallen from nearby trees. The cleaning of a skimmer is also much easier than an in-pond filter as you barely even have to get your hands wet.

Since mechanical filters will require the most cleaning they should be as easy to clean as possible otherwise they tend to get ignored leading to inadequate water movement and or pump failure.

Biological Filtration

Biological filtration simply means using bacteria to clean your pond. The action of beneficial bacteria not only improves the water quality for the fish but also improves the clarity decreasing the amount of algae in the pond. There are several types of bacteria that work to our benefit in the pond. This bacteria will attach to any surface that is in the water, the pond liner, stone, plants, and anything else that is underwater as long as it has a source of nutrients and oxygen. If we depend only on the bacteria that is living only on the liner, plants, etc. that is in the pond then we will not be able to keep many fish and our water quality may suffer. What we need to do is add more surface area to the pond. A lot more surface area that the bacteria can live on is needed. There is nothing magical about biological filter media. As we stated previously, bacteria will live on most any surface in the water. What we need to look for is a type of media that will provide as much surface area as possible and still keep the filter small enough to conceal in the landscape. We also want a media that is not too dense (unlike a sponge) that will allow the water to flow around and through it without clogging up. While gravel and lava rock have been used for years this material not only requires a very large filter (10% of the pond size or larger) it is heavy and difficult to clean. The best materials today that provide a high surface area in a small space with sufficient void space to allow the water to flow through easily are synthetic material. Small plastic shapes with textured surfaces, fiber media, and ribbon are considered the most efficient materials to use. As long as the material provides the bacteria with contact with the water then little or no cleaning is needed.

Sometimes (usually ponds of a few hundred gallons and less) the biological filter and the mechanical filter are the same. This could be a skimmer containing filter media or an in-pond filter. This means that we need to clean the filter to remove most of the accumulated debris without over-cleaning it, which would destroy some of the beneficial bacteria. Larger ponds will use one of the methods of mechanical

filtration already discussed in combination with a biological filter. The mechanical filter will be cleaned on a regular basis and the biological filter should require little attention. A separate mechanical and biological filter is the preferred method of setting up a filter system so that cleaning the mechanical filter does not disrupt the biological filtration. Over-cleaning a filter is one of the most common mistakes made by water gardeners.

Biological filtration is improved with the regular addition of packaged bacteria products such as Microbe Lift PL.

Fish

One of the first things most people think of when talking about a water garden are the fish that add color and excitement to the pond. To most pondkeepers, a water garden just isn't complete without fish. This focus on the fish leads many to quickly over-populate the pond. This is the biggest cause of cloudy, green ponds that need frequent maintenance. As a general rule (based on having adequate filtration as well) you can keep 1 goldfish for every 3-4 square feet of water surface. Koi should be limited to no more than 1 per every 10 square feet of water surface. Greater levels of filtration can allow more fish to be kept. However, if you want to keep a low-maintenance, healthy, and clear pond, then the fewer fish you have the better off you will be.

Plants

The beautiful waterlilies and assorted other aquatic plants are not only aesthetically pleasing, but provide a much needed function in water gardens. A pond should be heavily planted for best results. Plants use nutrients from the water and assist in natural filtration. Plants use up nitrates in the pond which is a byproduct of fish waste. Without the desired plants to use the nitrates, the nitrates become food for algae.

Conclusion

While there are certainly other factors involved in a low-maintenance pond, such as preventing rain run-off, trimming dead plant debris, and keeping out fall leaves, the 5 key points here will help reduce the time you spend maintaining your pond. That leaves more time for sitting by the pond as you watch the fish, smell the flowers, and just relax listening to the sound of the water.

Please Note: This article is focused on a water garden, a koi pond is a little different as it usually does not contain as many plants. As a result much greater focus is on the filtration.

The Water Garden News, August 2007
www.watergarten.com

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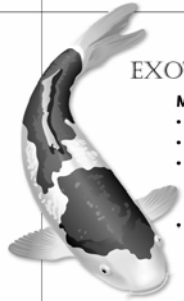
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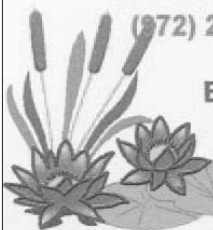
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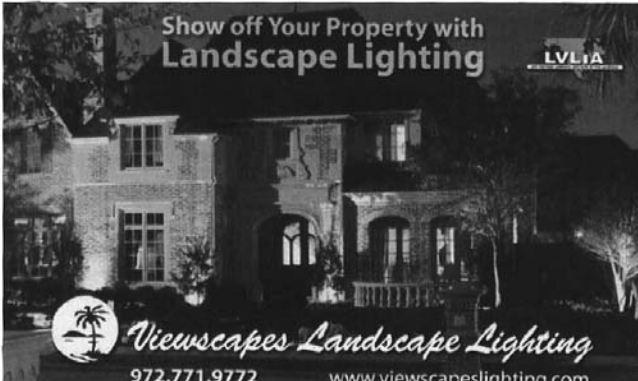
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NTWGS Programs

By David Gould

Our speaker for September will be NTWGS member Clair Ossian.

His talk is entitled: *Water Lilies and Lotus in Ancient Egypt.*

Clair states, "Though almost universally referred to as lotus, the Asiatic lotus was unknown in ancient Egypt. Images seen throughout Egyptian history are water lilies, not lotus. I have grown and studied Egyptian water lily species in my ponds for years. These flowers were chosen for use in rituals and daily life activities and I will give an overview of these wonderful flowers and the ways in which they were used in ancient Egypt."

Our October speaker will be Steve Moeller of Water Gardens Galore.

He will talk to us about *How to Winterize Our Ponds.*

There have been many articles written about this process but usually they are for regions with winters very different from our weather here in North Texas. He will give us specific pointers about plants, fish and the tasks we need to do to prepare our ponds for winter. Follow these steps and you increase the odds of your pond and inhabitants surviving the cold season and rebounding better in the spring. We will have a question and answer period after his talk, so bring your questions.



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Membership

Notice, if you are not receiving an email announcement of meetings and news events, then I do not have, or your current email address in our database is wrong.

If you would like to be included in this form of communication please send me your email address.

Kevin Fuess, Membership Chair, jmcinc@xspedius.net

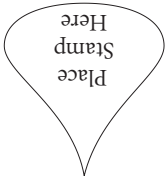


**August, 2007
Calendar of Events**

- 9/3 **Labor Day**
- 9/4 **NTWGS Board Meeting**
- 9/9 **Grandparents' Day**
- 9/11 **NTWGS Meeting**
- 9/11 **Patriot Day**
- 9/13 **Rosh Hashanah**
- 9/22 **Yom Kippur**
- 9/23 **Autumn Begins**

**NTWGS Voice Mail Number
972-994-1140**

**REMINDER!
Meeting September 11**



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