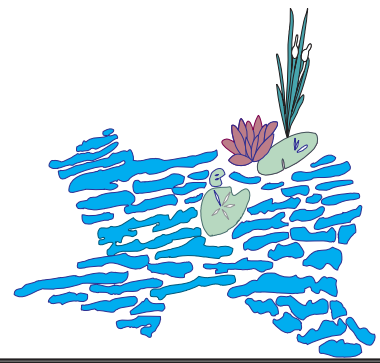


# Water Works



Newsletter of the North Texas Water Garden Society

May, 2009

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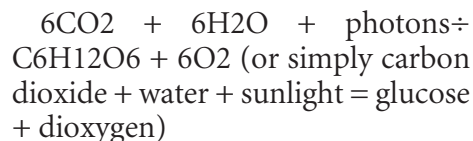
## Oxygen

Kevin Fuess, KHA



Trust me, you do NOT want me to sing! But these words from the hit song by the Hollies captures the essence of our next topic. Well actually oxygen, but you get the idea.

Oxygen being the third most abundant chemical element in the universe is available to us as approximately 21% of the air we breathe. Free oxygen is produced by the light-driven splitting of water during photosynthesis. A simplified overall formula for photosynthesis is:



You wanted to know that, right? As lung breathers our respiratory pump is bidirectional, air moves in and out of the same opening into and

out of the lungs. This is not the most efficient system because there is some mixing of fresh and respired air and there are pockets in the lungs that may never or hardly ever get fresh air. Fortunately this is not a problem because of the rich concentration of oxygen in the air.

The oxygen of concern in fish physiology is not the covatently bound O<sub>2</sub> in the H<sub>2</sub>O molecule, but the O<sub>2</sub> in simple solution in the water that is available to the fish for respiration. The amount of dissolved oxygen readily available will vary from 0 - 14 milligrams per liter (mg/L). And although the saturation level, the most that can be in solution under normal conditions, can be affected by several things in the water the most significant factor is the temperature. As the temperature increases the water simply cannot hold as much oxygen. At 450 F water can hold 12 mg/L; raise the temperature to 800 F and it can only hold 8 mg/L. And this is assuming conditions that will allow complete

See Oxygen, continued on Page 3

### Next NTWGS Meeting

May 12, 2009  
7:00 PM

Marilyn Simmons  
Landscaping with  
Texas Natives

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

See Map on Page 8

### We Need Your Story

An article for the Dallas Morning News is great publicity for the tour. An article is needed that will spotlight an owner with an interesting story, either an interesting hobby or career. If you are that person and would like to be featured in the newspaper, please contact Joe at vicepres@ntwgs.org or leave a message on the NTWGS voice mail at 972-994-1140.

# 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.

**Editor,** Susan Moore

email: sm.moore@tx.rr.com

North Texas Water Garden Society

<http://www.ntwgs.org>

Contributions to Water Works are always welcome and may be submitted to the editor by mail, fax or email. Letters to the Editor will be printed as space permits. NTWGS accepts no responsibility for the accuracy of the contents of this newsletter. Reproduction is permitted provided that this newsletter and the original source are credited.

## **The Water Garden's Tip of the Week**

Ultraviolet lights are an excellent way to eliminate green water. However, they can interfere with treatments to the pond. It is better to always turn off the UV light for 24-48 hours when adding treatments, especially bacteria and many fish medications.

## **President's Pad by Martha Ward**

First, I would like to thank everyone who took time out of their weekends to help with our spring projects. It goes so quickly with more people, and we were so thankful that the stream at the Dallas Zoo is in an area protected from the wind.

The pond tour will be here very soon and we are excited to see so many new and interesting ponds on it. There is truly something for every size yard this year. If your pond is not on the tour, I hope you plan to attend. I know we will be going. We had planned on being on the tour, but as it turned out, our pond project was delayed and our backyard is more a hazard zone than a soothing retreat right now. But we hope to get some inspiration and motivation from other ponds on the tour so we can get it finished.

Speaking of inspiration, our March speaker was Mike Whisenand from Whiz Q Stone. He talked to us about rocks, both the differences between them and how to use them around our ponds and homes. Listening to him, it occurred to me that creating a pleasing stone patio or pond is a lot like decorating a room, both in using contrasting and complementary colors and in varying the shapes and sizes of both stones and plants. Another point he made was placing the rocks in a way they would be seen when the plants had grown and filled in. And just like decorating a room, there is a focal point, and accessorizing to add a finishing touch.

After hearing him speak and seeing his project pictures, I finally see some of the things about our pond that have been bothering me. Our pond will never have

**See President, continued on page**

## **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**

President, continued from Page 2

the artistry of some he showed, and they were indeed works of art. Our pond needs more continuity with the rocks around it. We have an assortment of types and colors, from sandstone to granite, and even some others that were chosen just for their colors. That is what happened when we took the kids along while rock shopping. They headed straight for the unusual rocks and since it was a family project, how could we say no? However, I don't think I would have found the petrified soap without them. I got it at Whiz Q Stone, though about ten years ago, and I think that's even where I got the petrified brain of a prehistoric man. Don't believe me? You'll have to come see my pond; what it lacks in style, it makes up in odd.

**Tour Book Notice**

**Only members with paid memberships will receive a tour book. If your membership has lapsed, please email us at [membership@ntwgs.org](mailto:membership@ntwgs.org) or leave a message on the NTWGS voice mail at 972-994-1140.**

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**Our Annual Butterfly Plant Sale is back!**

When: May 15 and 16, 2009

**Member's Preview Night:**

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---

Plant Sale, continued on Page 4

**Critter Corner**

The Little Rodent in Your Garden Could Be a Vole



Voles, often called field mice or meadow mice, occupy a wide variety of habitats, depending on the species. Sometimes mistaken for mice or rats, voles differ from them by making tunnels and surface runways. Vole burrows are visible near or on the surface, and are about two inches wide. Several adults and young can live in these runway systems. This intricate network of tunnels and burrows provide voles with excellent shelter from the weather and protection from predators. Voles have their young, and store seeds and other plant matter in these underground chambers. Runways result from voles eating grass and their continuous traffic up and down the same path. Voles are active year-round, usually at night. They commonly feed on stems and blades of grass. Aside from that, damage from voles are primarily to flower bulbs and various other roots such as potatoes, along with the way that burrows and runways cause lawns to look.

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**Oxygen, continued from Page 1**

saturation. More probable, the oxygen level will be something less than saturated. And if this is not bad enough, as the temperature rises the fish become more active, plants grow and biological activities increase causing a greater demand for oxygen. Fortunately fish are remarkably well adapted for extracting oxygen from the water. In most fish, the system is unidirectional; water always moves through the mouth and one way across the gills, then out through the operculum. And to enhance the oxygen extraction even more, the blood flow through the gills runs in the opposite direction of the water flow. We won't go into all of the physiology involved with this system except to say that it is very efficient. But this doesn't mean we can ignore the oxygen concentration level in our ponds. Let's look at how the oxygen level affects our fish and what we can expect: at 75°F water will hold approximately 8.5 mg/L oxygen (saturated). Although an oxygen level of 5 mg/L will support aquatic life, this should be considered the lower limit of what should be available for our fish. That leaves a range of 3.5 mg/L (parts per million) between the lower limit and the most available at this given temperature. Oxygen levels between 5 – 3 mg/L can normally be tolerated for short periods of time, but at less than 4 mg/L the fish will be gasping for air and hanging out around the waterfall. Below 3 mg/L your fish will suffocate. Not only are the fish dependent on oxygen but the nitrifying bacteria that are responsible for converting ammonia to nitrite then to nitrate also require a sufficient supply oxygen to survive. 0 mg/L will not support the type of life we want in our ponds but is the ideal situation for anaerobic bacteria which thrive in the absence of oxygen. This can occur in our ponds at the lower levels of a deep

accumulation of mulm and detritus. Anaerobic bacteria smell bad and produce toxic gas—we don't like them.

To keep everybody happy, bacteria, fish and us, we need to insure that an adequate supply of oxygen is available. It is not difficult to get oxygen into water. As long as air is in contact with water there will be a transfer of oxygen. This can be enhanced with mechanisms that increase the surface area exposed to the air: waterfalls, streams, fountains, etc. To get even more oxygen into the water to ensure near saturation, an air stone and pump can be utilized. So when should supplemental air be considered; heavily populated ponds, those with less than ideal circulation and ponds with large amounts of algae. Wait a minute! Didn't I say at the top that oxygen is produced from photosynthesis; and this is a function of plants; and algae is a plant. So algae and other submersible plants (oxygenators) should be beneficial and a contributor to the overall oxygen level. You are so on the ball! But don't forget, photosynthesis only occurs during daylight. At night (or even very cloudy days) respiration is taking place and the very plants that were creating oxygen are now consuming it. This could lead to a deficit of oxygen in the early morning in ponds that have too many plants and is not designed to take most advantage of oxygen absorption. This makes a good case for keeping your pump running 24/7.

The Times They Are A-Changing

**The Times They Are A-Changing**

And we are changing with them. We have plans to begin sending out newsletters by email by fall. If your email is on file with us but you would rather continue receiving it by USPS, let us know by email at [membership@ntwgs.org](mailto:membership@ntwgs.org) or leave a message on the NTWGS voice mail at 972-994-1140. If you have an email on file but have requested not to be contacted through it, or if you do not have an email on file, you will continue to receive your newsletters through USPS.

**Plant Sale, continued from Page 3**

2009 Bonus: Since it takes shrubs and trees longer to propagate, we have ordered a few specialties just for you. Look for gems like native kidneywood at our Plant Sale.

You can also buy SEASONS Liquid Compost at the sale. Bring an empty gallon container to fill and help us cut down on waste this Plant Sale!

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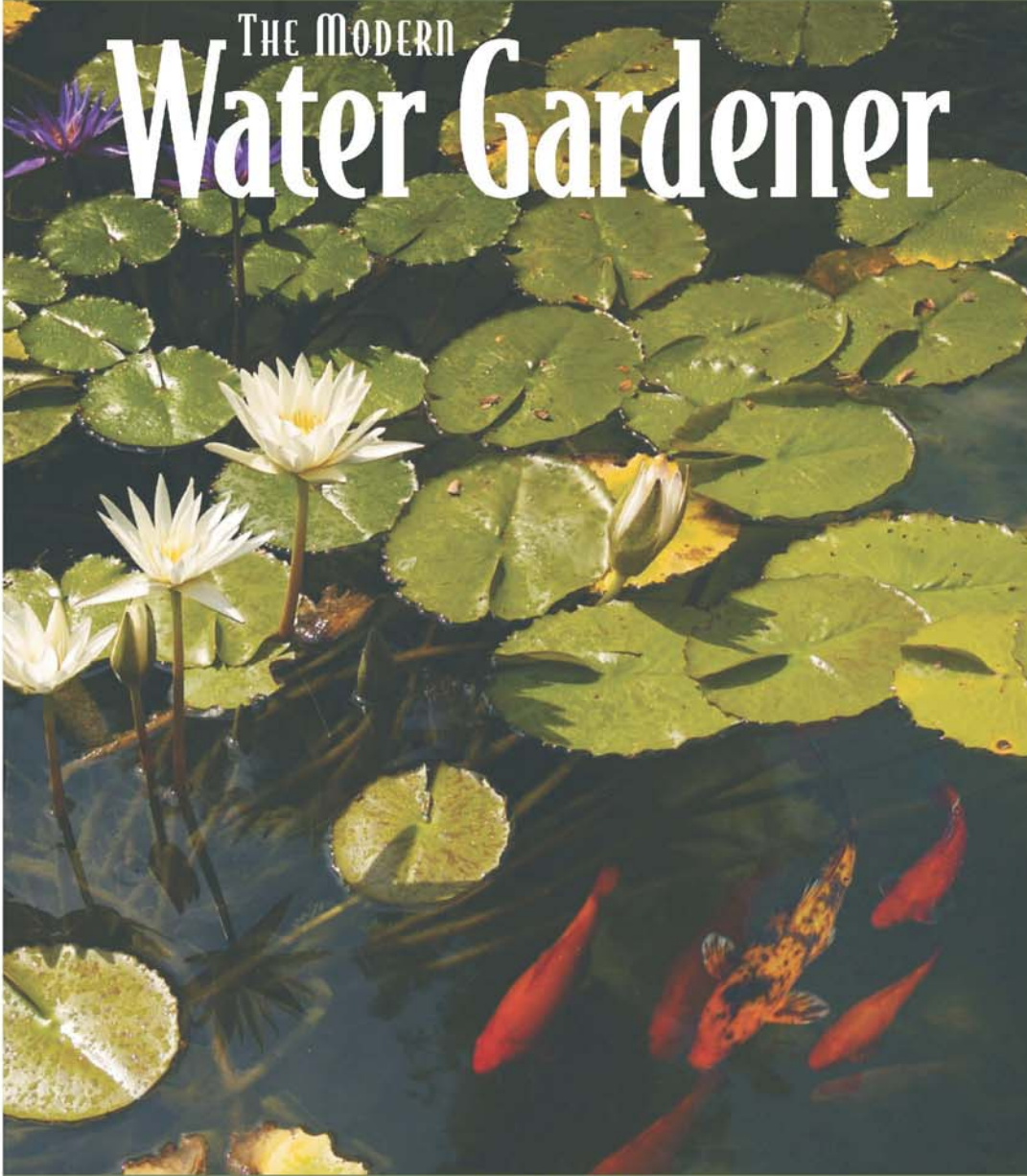
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### May Gardening Tip: The Dirt on Poison Ivy

We like our native plants at Texas Discovery Gardens, but we won't mind if you remove this one from your yard. It's time for a refresher on what to do with that bane of hiking and outdoor play: poison ivy.

*What does poison ivy look like?* For starters, it's not an ivy at all. It's a master of disguise. Toxicodendron radicans is in the sumac family. It grows as a shrub and as a vine. It will crawl up trees or fences or sprawl across the ground. Poison ivy mimics a lot of other plants, especially when it's young, but look for groups of three


See Poison Ivy, continued on Page 7

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Poison Ivy, continued from Page 6

leaves throughout the plant. If there are five anywhere, it's probably Virginia Creeper, a harmless groundcover.

*Am I immune to poison ivy if I've never gotten a rash?* Probably not. Very few people are completely immune. You don't build up immunity, either. It's actually the opposite. The more you touch poison ivy, the more likely you are to get a rash. Poison ivy produces a sap, urushiol, that irritates skin. Things that brush up against poison ivy—like pets—can transfer urushiol to you. Keep an eye on pets and children if you're out hiking or playing in a natural area. The rash itself is not contagious.

*Oops. I think I'm standing in some right now.* If you do touch poison ivy, you may have up to 15 minutes to wash it off before it irritates your skin. Wash the area in cold water and poison ivy soap, or use alcohol or mineral oil. Hot water opens up your skin's pores and increases the likelihood of irritation.

*How do I remove poison ivy from my yard?* Never use power tools, even (especially) if you think you're immune. Trust us on this one. And never, ever burn poison ivy. You will irritate your lungs and most likely require a trip to the emergency room.

Wear gloves and long sleeves and remove poison ivy by hand. You don't have to kill the plant first. The dead plant, roots and all, will still contain the irritant. If you use tools, wash them down with alcohol. Wash clothing after contact.

Once you're done, plant something a little friendlier, like passionvine or honeysuckle. No gloves required.

Reprinted from Texas Discovery Gardens Informational Newsletter



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If you would like to be included in this form of communication please send me your email address at Kevin Fuess, Membership Chair, [membership@ntwgs.org](mailto:membership@ntwgs.org)

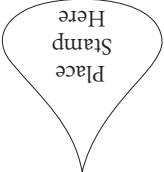


### Calendar of Events

- 5/1 May Day
- 5/2 Kentucky Derby
- 5/3 Garden Meditation Day
- 5/4 NTWGS Board Meeting
- 5/8 World Red Cross Day
- 5/10 Mothers' Day
- 5/11 NTWGS Meeting
- 5/15 National Bike to Work Day
- 5/25 Memorial Day

**NTWGS Voice Mail Number**  
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**REMINDER!**  
Next Meeting May 12, 2009



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