

**Native Plant Society of Texas  
Big Bend Chapter  
July 2007 Newsletter**

**2008 Programs** -

Still looking for responses on past programs that folks would like to re-do - or do for the first time. We've heard from about 10% of the membership and would really like to make decisions based a larger number than that! So, if you have not responded, hit the reply button, then go into the programs listed on the last page of this newsletter and mark your choices by making an "X" in the margin next to your choice. If you're receiving a hard copy of this, just mark and mail to Dallas B. 803 N. 7<sup>th</sup> St. Many thanks!

**Grasshoppers** -

First the freeze, then the hail and now the grasshoppers ... It's enough to make you cry. BUT, Alice has a fresh batch of Nolo Bait at One Way, and if your grasshoppers are still in the  $\frac{1}{2}$ " to  $\frac{3}{4}$ " size range and you've got 8 or more of them per square yard, Nolo Bait is the answer. You've got to get them while they're small. The microsporidial pathogen in the bait not only kills the guy that eats it but continues to kill the other grasshoppers as they feed on each other. Not a pretty picture, but effective! Safe for pets, etc. but not around fish.

**August meeting** -

August 24 is the date for a Friday evening (5-7 p.m.) happy hour at One Way Plant Nursery in Alpine. The evening will feature a seed and plant exchange and an opportunity to get a jump on everybody with the fall plants Alice will have just gotten in. Also available for small money will be Beth Francell's excellent Salvias for the Trans-Pecos brochure and a wide selection of salvias for fall planting. Please mark your calendars. More in August.

**The Nature of Water** -

Couldn't resist forwarding this excellent article from the New York Times, July 10:

**Small, Yes, but Mighty: The Molecule Called Water**

By **NATALIE ANGIER**

Some 380 million years ago, a few pioneering vertebrates first made the leap from water to land. And today, tens of millions of their human descendants seek summer amusement by leaping the other way. According to the travel industry, close to 90 percent of vacationers choose as their holiday destination an ocean, lake or other scenic body of water.

We may have lungs rather than gills, and the weaker swimmers among us may be perfectly capable of drowning in anything deeper than a bathtub, yet still we feel the primal tug of the tide. Consciously or otherwise, we know we're really all wet.

As fetuses, we gestate in bags of water. As adults, we are bags of water: roughly 60 percent of our body weight comes from water, the fluidic equivalent of 45 quarts. Our cells need water to operate, and because we lose traces of our internal stores with every sweat we break, every breath and excretion we out-take, we must constantly consume more water, or we will die in three days.

Thirstiness is a universal hallmark of life. Sure, camels can forgo drinking water for five or six months and desert tortoises for that many years, and some bacterial and plant spores seem able to survive for centuries in a state of dehydrated, suspended animation. Yet sooner or later, if an organism plans to move, eat or multiply, it must find a solution of the aqueous kind.

Life on Earth arose in water, and scientists cannot imagine life arising elsewhere except by water's limpid grace. In the view of Geraldine Richmond, a chemistry professor at the [University of Oregon](#) who often talks to the public on the wonders of water, [Mark Twain](#) put it neatest: "Whiskey is for drinking; water is for fighting over."

Behind water's peerless punch, and the reason it rather than alcohol or any other lubricant serves as the elixir of life, is the three-headed character whose chemical name we all know:  $H_2O$ . Scientists observe that when two atoms of hydrogen conjoin with one of oxygen, the resulting molecule displays a spectacular range of powers, gaining the mightiness of a molecular giant while retaining the speed and convenience of a molecular mite.

"Water behaves very differently from other small molecules," said Jill Granger, a professor of chemistry at Sweet Briar College in Virginia. "If you want something else with similar properties, you'd end up with something much bigger and more complex, and then you'd lose the advantages that water has in being small."

Because of water's atomic architecture, the tendency of its comparatively forceful oxygen centerpiece to cling greedily to electrons as it consorts with its two meeker hydrogen mates, the entire molecule ends up polarized, with slight electromagnetic charges on its foreside and aft. Those mild charges in turn allow water molecules to engage in mild mass communion, linking up with one another and with other molecules, too, through an essential connection called a hydrogen bond. The hydrogen bond that attracts water to water and to other like-minded players is subtler than the bond that ties each water molecule's atoms together. But subtlety breeds opportunity, and from hydrogen bonds many of water's major and minor properties flow.

With their hydrogen bonds, water molecules become sticky, cohering as a liquid into droplets and rivulets and following each other around like a jiggling conga line. Such stickiness means that water is drawn to the inner plumbing of plants and will crawl up the fibrous conduits to hydrate even the crowns of redwood trees towering hundreds of feet above ground.

Pulled together by hydrogen bonds, water molecules become mature and stable, able to absorb huge amounts of energy before pulling a radical phase shift and changing from ice to

liquid or liquid to gas. As a result, water has surprisingly high boiling and freezing points, and a strikingly generous gap between the two. For a substance with only three atoms, and two of them tiny little hydrogens, Dr. Richmond said, you'd expect water to vaporize into a gas at something like minus 90 degrees Fahrenheit, to freeze a mere 40 degrees below its boiling point, and to show scant inclination to linger in a liquid phase.

That's what happens to hydrogen sulfide, a similarly sized molecule but with its two hydrogen atoms fastened to sulfur rather than to oxygen; on our temperate world, hydrogen sulfide has long since reached its boiling point and exists as a foul-smelling gas. Same for the tidy troika of carbon dioxide: low freezing point, low boiling point, and, poof, it's up in the air. But given its vivid power of hydrogen bonding, water proves less flighty and fickle, with a boiling point at sea level of 212 degrees Fahrenheit, and a full 180 degrees lying between the tempest of a teapot and the tinkling of an ice cube at 32 degrees. A vast temperature span over which water molecules can pool and cling as the liquid assets we love best.

We rely in myriad ways on water's fluid forbearance, its willingness to take the heat without blinking. Earth's oceans and lakes soak up huge quantities of solar radiation and help moderate the climate. As sweat evaporates from our skin, it wicks away large amounts of excess heat.

Water also serves as a nearly universal solvent, able to dissolve more substances than any other liquid. It can act as an acid, it can act as a base, with a pinch of salt it is the solution in which the cell's thousands of chemical reactions take place.

At the same time, water's gregariousness, its hydrogen-bonded viscosity, helps lend the cell a sense of community.

"Water acts as the contact between biological molecules, not just separating them, but imparting information among them," said Martin Chaplin, a professor of applied science who studies the structure of water at London South Bank University. "In an aqueous environment, all the molecules are able to feel the structure of all the other molecules that are present, so they can work as whole rather than as individuals."

There's no end to water's chemical kinkiness, including the way it freezes from the top down and becomes buoyant as it chills. Most substances shrink and get denser and heavier as they cool, and expand and lighten as they melt. Water bucks the norm, and is lighter and airier as ice than when liquid, and so in winter marine life can find liquid haven beneath the floating blanket of ice, and so in summer ice cubes bob and clink in your glass of lemonade. Bottoms up.

**Page 4 is a list of previous programs. Please indicate your 10 choice for repeats. You can simply hit the reply button on this e-mail, mark your choices and send, or, if you prefer, print and mail to Dallas Baxter, 803 N. 7<sup>th</sup> St., Alpine 79831**

**NPSOT programs 2002-2007**

2002

*Propagating Natives*, Patty Manning, SR  
*Bringing the Chihuahuan Desert into your Garden*, Bill and Joan Carlisle and *Bio-Intensive Greenhouse Gardening*, Clyde Curry & Kate Thayer, Marathon  
*Designing Outdoor Rooms*, Nancy Robinson and Jeff Smith, Ft. Davis  
*Creating Wildscapes*  
*Catch water Systems and Gray water Use*, Sue and Early Beach, Terlingua  
*Botanizing Fern Canyon and "Everything you've always .... about native plants"* - Wynn Anderson

2003

*Invasive Exotics*, Jackie Poole, SR  
*Botanizing at Big Bend Ranch State Park*, David Long  
*Chihuahuan Desert Gardens Tour* at Museum Gardens, UTEP - Wynn Anderson  
*Lawns, Meadows and Groundcovers* - Beth Francell  
*Flora of the Novaculate Habitats* - Mike Powell, Marathon  
*Ecology and Native Grasses of the Marfa Plateau*, Hip-o Ranch, John Karges, Patty Manning  
*Soils* - Bonnie Warnock, SR  
*Harvesting Seed* - Patty Manning, Ft. Davis  
*Rangeland Restoration* - Joe Sirotnak - BBNP

2004

*Water in the Desert*, Alyson McDonald  
*Tamarisk Eradication along the Rio Grande Swales* - retaining water for rangeland grasses, Carl Potter, So. Brewster Co.  
*Potluck Native Plant Foods lunch*, Eve Trook, Alpine  
*Gray water Ponds*  
*Diamond Y Ranch* - John Karges  
*Native Food Sunday Brunch*, Beth Francell, Ft. Davis

2005

*Tree Pruning* - Martha Latta  
*Botanizing at Glass Mountains Ranch*, Patty Manning, Hiram Sibley  
*Water and Wildlife*, Carolyn Ohl, So Brewster Co.  
*Propagating Cactus*, Patty Manning, SR  
*Botanizing Mt. Livermore*, Pete Szilagyi, Red Rock Ranch, Van Horn  
*Trees*, Oscar Mestas, Fort Davis Historic Site  
*Symposium presentations*

2006

*Symposium presentations* presented again  
*Fire* - controlled burns & fire management - program cancelled, repeated in 2007  
*Gardening with Salvias* - Beth Francell  
*Botanizing on Elephant Mountain*  
*Landscaping the Highways and Roadside Parks with TxDOT*- Deena Gantt  
*Orienteering* - navigating with map and compass - CDRI, Martha Latta  
*Water Gardens as Water Catchment* - Mike Mecke  
*Medicinal and Poisonous plants of the Trans-Pecos* - Martin Terry

2007

*Hardscape in the winter garden*, Linda Hedges, Ft. Davis  
*Trans-Pecos Orchids*, Karen Little, Marfa  
*Restoring Water in the Desert*, Bonnie Warnock, O2 Ranch  
*Wildscapes - Gardening for Birds and Butterflies* - Jill Nokes, Lois Balin, Mike Mecke, Martha Latta

New Ideas:

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