



# Texas Wetland News

and WETLAND CONSERVATION PLAN UPDATE

4200 Smith School Road • Austin, TX 78744  
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## ENLIVEN YOUR PRESENTATIONS TO KIDS!

Looking for a way to “liven up” your presentations to kids about aquatic studies? Make wildlife concepts come alive through the popular, award-winning set of hands-on educational activities, Project WILD Aquatic! The Project WILD Aquatic manual is full of fun, hands-on, easy to use educational activities that focus on aquatic wildlife and natural resources. This resource is only available through attendance at a Project WILD Aquatic workshop. Workshop participants receive the manual full of 48 activities suitable for grades K-12.

Project WILD Aquatic is part of the Project WILD program and is the most widely accepted and popular wildlife education program nationally. Texas Parks and Wildlife Department is the administrative coordinator for this program in Texas, and through a corps of volunteer facilitators, annually trains over 2,600 new educators.

These workshop and resources are available at no cost. Visit the TPWD Web site to learn more about Project WILD or see listing of current workshops offered throughout the state.  
[www.tpwd.state.tx.us/edu/](http://www.tpwd.state.tx.us/edu/)

## Hydrologic Connection Study at the Armand Bayou Nature Center

The Environmental Protection Agency has awarded a grant to the Texas Parks and Wildlife Department to study non-riverine, non-tidal, freshwater wetlands on the Texas coast. There are about 3.5 million acres of these wetlands on the Texas coastal plain and they are typically known as flatwoods, hardwood swamps, ponds, wet prairies and potholes, or basically all of those wetlands that aren't salt marshes or river swamps. They have not been well-documented and our research objective is to characterize their historic and current abundance along with distribution, hydrology, soils, plant life and wildlife usage.

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## Hydrologic Connection Study , continued

A crucial part of this study is to document the hydrology of these wetlands and determine their relationship to mapped streams, bayous and bays. This is critical because wetlands are highly effective at removing water pollution before contaminants flow into waterways and thereby render them unsafe for swimming and contaminate or kill fish. Recent studies of other bay systems found that 80% of nitrogen pollution, our single most harmful water pollutant (the one responsible for making Armand Bayou a brilliant green in the summer and for its low dissolved oxygen levels), is removed from freshwater runoff before it reaches bay systems. This removal is likely accomplished largely by wetlands through a process known as denitrification, whereby the water-soluble polluting form of nitrogen is transformed into its harmless, gaseous state and released into the atmosphere.

U.S. Geologic Survey Topographic maps showing the locations of many of these 3.5 million acres of wetlands do not depict them with outfall streams connecting them to other major waterways. If these wetlands are not hydrologically connected to other waterways, then they have very little opportunity to clean up water pollution that would otherwise flow into them and cause problems. Therefore the EPA and Army Corps of Engineers currently give them no consideration in their Clean Water Act wetlands protection rules and it is not known if their restoration can assist in cleaning up polluted waterways. However, USGS maps of the Texas coastal plain do not show most small, intermittent waterways, the type that would likely act as hydrologic links, so it isn't known whether the wetlands actually exist as isolated ponds or if their connecting streams are simply unmapped.

A quick study by TPWD staff biologist Andrew Sipocz completed a few years ago using aerial photography and surveyed intermittent stream locations showed that most wetlands were linked to major waterways by unmapped intermittent streams. Though he did not measure stream discharge volume, he found that these wetlands are actually the unmapped headwater tributaries of our coastal bayous and estuaries and as such are likely to play a vital role in providing them with clean, fresh water. At one of the study sites, the Armand Bayou Nature Center in Harris County, it was found that intermittent streams emanating from isolated wetlands supplied approximately 57% of the Nature

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Center's rainfall runoff into Armand Bayou and 92% into Taylor Bayou. This new study funded by the EPA is setting up equipment on the Nature Center that will measure the volume and timing of water flowing out of the wetlands and into Armand Bayou. It has already determined that the previous approximation was low and that most likely more than 90% of all freshwater runoff flowing off the Nature Center's grounds is emanating from isolated wetlands. It appears that these wetlands are acting as runoff gathering and storage areas, and most importantly as areas that clean pollutants from runoff before it enters local bayous and bays.

This is critical information for biologists and water managers on the Texas coastal plain. The area's clay soils are not conducive to the formation of the groundwater flow, springs and seeps that supply much of the clean water flowing in waterways of other regions such as the Hill Country, East Texas and most of the eastern United States. This means that water flowing into streams such as Armand Bayou that is not being supplied by the wetlands is most likely coming from storm water and sewage plant outfalls and is likely to be contaminated with pollutants. In addition, in highly developed coastal areas such as Houston, Beaumont and Corpus Christi, much of the water pollution flowing into local estuaries begins as air pollution that settles out on all outdoor surfaces attached to dust particles and is then washed into waterways via rainfall runoff.

## Hydrologic Connection Study , continued

The field research will place a metal flume with a weir and flow depth gage in the outfall stream of a circular depression (pothole) that contains marsh vegetation and is surrounded by the flatwoods located west of the Center's main buildings. It will be used to determine the volume of water flowing out of the wetland and into Armand Bayou. This, coupled with precipitation and evaporation and transpiration data, will be used to develop a water budget for the wetland and will allow researchers to determine the contribution of this and similar wetlands to the freshwater flow of Armand Bayou.

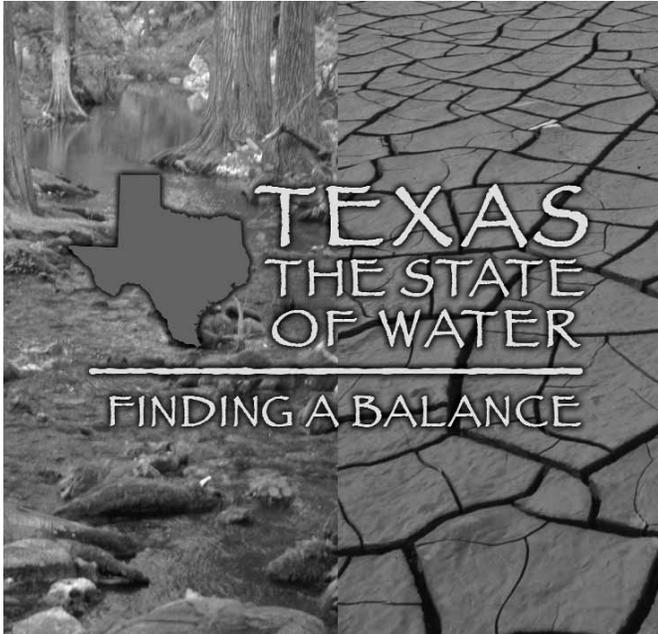
The wetland hydrology study is being conducted by Texas Parks and Wildlife Department staff Jeff Raasch, Nathan Kuhn and Andrew Sipocz with University partners Brad Wilcox from Texas A&M College Station, George Guillen of the University of Houston's Environmental Institute, John Jacob of Texas Seagrant and Texas A&M University. The University partners are also applying for grants that will allow them to measure the amount of pollution that this wetland system removes before releasing its water to the Armand Bayou.



### WANT TO GET ON THE MAILING LIST?

If you would like to be added to the mailing list or would like to submit an article for the next issue of the Texas Wetlands News, contact:

Jennifer Key  
Inland Fisheries Division  
4200 Smith School Road  
Austin, Texas 78744  
or E-mail - [jennifer.key@tpwd.state.tx.us](mailto:jennifer.key@tpwd.state.tx.us)



## Water Documentary Segments Coming Soon

In the upcoming fall season, *Texas Parks & Wildlife* television shows on PBS will be serializing the latest water documentary 'Finding a Balance.' Segments on water and wetland issues will be featured in the fall series, which will begin airing Oct. 2, 2005, and will run through April 2, 2006.

Tune in to your local PBS station and check out these upcoming segments on *Texas Parks & Wildlife*.

### Finding a Balance

With our population expecting to double in the next 50 years, Texans face a daunting challenge to provide enough water for cities, industry and agriculture without short-changing fish, wildlife and the environment that supports everything.

This first segment, part of an hour-long special, examines the basic laws that govern surface water and groundwater in Texas and the mosaic of agencies and authorities involved in administering these laws. We'll see how they try to cooperate to insure there's enough water for both a vibrant economy and environment.

### Whiskey is for Drinkin' and Water is for Fightin'

Over the years many court cases have tested Texas water laws. We'll examine how an environmental group joined with a river authority to sue the U.S. Fish and Wildlife Service over spring flow and endangered species, how the pumping at a catfish farm threatened the city of San Antonio, and how the San Marcos River Foundation challenged the state agencies and legislators to protect freshwater inflows to the San Antonio and Matagorda Bays.

### Keeping the Neches Natural

One of the last relatively free flowing rivers in Texas, the Neches River, is federally protected in its lower half. Some groups want this protection to extend to its headwaters and restrict new reservoir construction. Reservoirs have served us well in the past and continue to be proposed as a water supply option. We'll look at one man's fight on the Sulphur River to save a ranch that has been in his family for six generations.

### The Latest Liquid Gold

Water is valuable and water rights can be even more valuable. We'll see how one river authority acquired water rights to increase their options in providing water along the Colorado and how it relates to local farmers and hunters. In addition, we'll examine how another group of agencies is planning to divert water from the Guadalupe River and send it back to San Antonio in a pipeline from the Texas coast.

### The Phoenix Flow

Freshwater inflows are the lifeblood of Texas bays. A new study seeks to understand how a proposed water supply project for San Antonio could impact Matagorda and San Antonio bays and one of Texas' most famous winter inhabitants, the endangered whooping crane.

**Links to Your Lifestyle**

Everyday decisions we make, at many levels, can impact the quantity and quality of water that we all depend upon. San Antonio leads the way in water conservation by finding and fixing leaks in their system. We'll look at a housing developer that preserves as much original habitat as possible, while landscaping after construction with water-saving native plants. We'll see how you can help generate valuable data for Texas Watch, a statewide volunteer water monitoring group.

**Frog People**

Amphibians may be trying to tell us something, and some concerned citizens are listening. At backyard ponds, suburban creeks and rural wetlands, participants in the Texas Amphibian Watch program monitor the health of frogs and toads, both for science and for fun.

**Native Texan Duck**

Most ducks migrate through Texas, but the Mottled Duck stays here all of its life, which makes it a good indicator species to monitor the health of wetlands. Follow a graduate student as he follows the movements of these ducks with banding and radio transmitters.

**Learn more about the  
Texas Parks & Wildlife  
television show at:  
[www.tpwd.state.tx.us/tv/](http://www.tpwd.state.tx.us/tv/)**



# Master Naturalist Program Seeks Applicants

Fourteen chapters of the Texas Master Naturalist program will be conducting fall training classes for volunteers interested in helping conserve our natural resources.

The Texas Master Naturalist program - with 33 chapters - develops a local corps of well-informed citizen volunteers who educate their communities about the management of natural resources. The main qualification needed to become a Certified Texas Master Naturalist is an interest in learning and playing an active part in natural resource conservation.

Volunteers signing up to become a Master Naturalist will receive a minimum of 40 hours of training from educators and natural resource specialists from universities, state and federal agencies, nature centers and museums. Training topics include interpretation and management of natural resources, ecological concepts, eco-regions of Texas and natural systems management. Volunteers are expected to give 40 hours of service a year in community education, demonstration and habitat enhancement projects and are also expected to pursue a minimum of eight hours of advance training in areas of personal interest.

Texas Master Naturalist Chapters offering volunteer training this fall are listed below with contact information. Enrollment is limited in most chapters, and some registration deadlines have passed, but contact the chapter to see if seating is still available.

**Angleton-Cradle of Texas Chapter.** Training begins Sept. 7. Registration deadline is Aug. 19. (979) 849-1564, ext. 112 or r-tillman@tamu.edu

**Athens-Post Oak Chapter.** Training starts Oct. 1. Registration deadline is Sept. 17. (903) 887-5061

**Bryan/College Station-Brazos Valley Chapter.** Training begins Sept. 15. Registration deadline is June 1. vidya.rajana@blinn.edu

**Burnet-Highland Lakes Chapter.** Classes begin Sept. 8. (512) 756-5463 or burnet-tx@tamu.edu

**Corpus Christi-South Texas Chapter.** Classes begin Sept. 13. (361) 767-5217 or wm-womack@tamu.edu

**Denton-Elm Fork Chapter.** Class Roundup is Aug. 18 and registration deadline is Aug. 25. Training begins Sept. 6. (940) 349-2883 or jn-cooper@tamu.edu

**Fort Davis-Tierra Grande Chapter.** The first class for this new chapter is being planned for late August. education\_cdri@overland.net

**Fort Worth-Cross Timbers Chapter.** Orientation begins Aug. 30. (817) 355-4832 or membership@ctmn.org

**Houston-Gulf Coast Chapter.** Classes begin Aug. 27. Deadline for registration is Aug. 8. (281) 855-5600 or gcmn@tamu.edu

**Kerrville-Hill Country Chapter.** Classes begin Aug. 31. Registration deadline is July 15. (830) 257-2094 or hcmasternaturalist@yahoo.com

**New Braunfels-Lindheimer Chapter.** Classes begin Nov. 1. Registration deadline is Oct. 14 and orientation will be held Oct. 18. (830) 620-3440 or elee@nbutexas.com

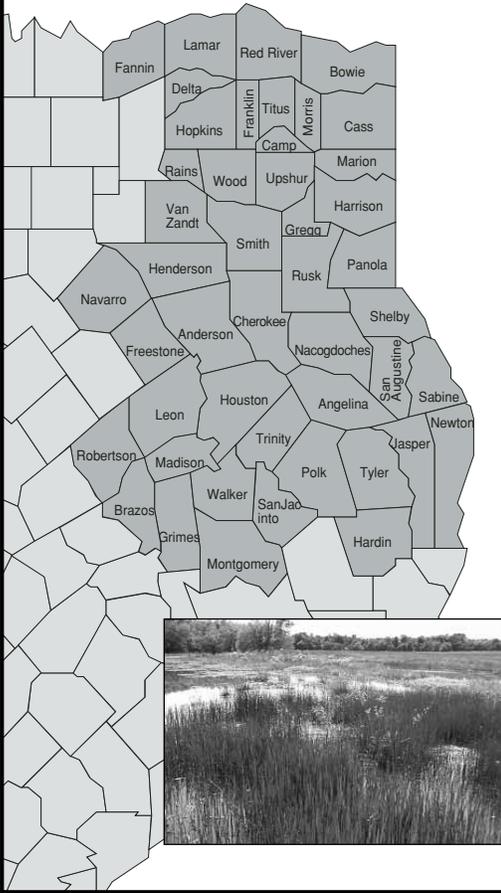
**Rosenberg-Coastal Prairie Chapter.** Classes begin Sept. 8. Registration deadline is July 28. p.dhemecourt@prodigy.net

**San Antonio-Alamo Area Chapter.** Classes start Sept. 15. (210) 698-2397 or www.alamomasternaturalist.org

**Waco-Heart of Texas Chapter.** Classes start Sept. 14. noras@ci.waco.tx.us



**Texas Parks and Wildlife Department and Texas Cooperative Extension co-sponsor the Texas Master Naturalist program statewide. For more information about existing chapters or forming a new chapter contact Sonny Arnold, Assistant Program Coordinator, 111 Nagle Hall, 2258, TAMU, College Station, TX 77843-2258. Call (979) 458-1099 or E-mail: sarnold@ag.tamu.edu**



# Private Lands Wetland Conservation Through the East Texas Wetlands Project

The East Texas Wetlands Project (ETWP) is a wetland restoration and enhancement partnership among Texas Parks and Wildlife Department, U.S. Fish and Wildlife Service, USDA Natural Resources Conservation Service and Ducks Unlimited. ETWP provides technical assistance and/or cost share to restore and enhance wetlands on private lands within 46 counties of northeastern Texas. Landowners must sign 30-year Wetland Development Agreements (WDA), and are given the opportunity to enter into perpetual conservation easements. Wetland habitat types eligible for the program include forested wetlands, riparian areas, emergent wetlands and moist soil areas.

Recent changes to the ETWP guidelines now require a minimum of 25 acres restored/enhanced wetland via manageable water, offer 50% cost share (up to \$350/ac ETWP cost), and will provide up to \$50,000 total reimbursement annually to cooperators. For more information please contact Keith McKnight at (903) 581-9570.



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