Bringing Programs Together: Healthy Habitats & Texas Stream Team

By Jana Harter, Healthy Habitats

Healthy Habitats partnered with Texas Stream Team (TST) to certify 27 new monitors in Allen, Texas on February 4. Students and teachers from Allen High School, Coppell High School, Ereckson Middle School, and Olson Elementary along with RJ Taylor (Connemara Conservancy), Zoe Ann Stinchcomb (Texas Parks and Wildlife Department-Athens), and Jana Harter (Healthy Habitats) all participated in the training held at Montgomery Farm and the Connemara Meadow. RJ and Laurie Merrick (8th grade science teacher and Ereckson M.S. Environmental Club advisor) also completed the first phase of their trainer certification by assisting with the training workshop.

Park Ranger Insights – From Drought to Flood In Just A Few Hours

By Josh Oyer, Park Ranger, Lockhart State Park

I started working at Lockhart State Park in the summer of 2011, amidst one of the hottest and driest years on record in Texas. From July to September, I watched as Clear Fork Creek (one of the centerpieces of the park) lost more and more water each day. The drop in flow could easily be observed by the exposure of the bank cutout and the decreasing volume of water passing over the various small dams along the creek.

Watershed Protection Plan – Plum Creek Watershed Partnership Meetings and Watershed Protection Plan Update

By Nikki Dictson, Texas AgriLife Extension Service Program Specialist - Water Quality

Meetings were held recently with members of Plum Creek Watershed Partnership — a collaboration of cities, agencies, organizations and citizens in Central Texas — to help ensure long-term sustainability of the partnership and secure matching funds for a new grant.
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While only 27 attendees were certified, there were over 35 participants at the training. Non-certified attendees will continue toward completion of their training certification through local Texas Stream Team trainers.

The Healthy Habitats Program is in its third year as a statewide education program that provides an opportunity for young people in grades 5 - 12 to work with local and state partners to address critical environmental habitat issues identified by the Texas Parks and Wildlife Department through the Texas Conservation Action Plan (TCAP). Texas is the only state where student service-learning projects support a state conservation action plan. Healthy Habitats is an evolving partnership currently supported by Service Learning Texas, Encana Oil & Gas (USA), Texas Parks and Wildlife Department (TPWD), Environmental Systems Research Institute, Inc. (Esri), and the Texas Stream Team.

Students are excited to learn about their local watersheds and integrate the data that they collect into their Healthy Habitats projects. “Our group learned how to measure the quality of water draining into Rowlett Creek,” said Gabby Perez, a leader in the Ereckson Middle School Environmental Club. “We are looking forward to starting our research and adding more native plants to see if we can make a difference to the wildlife that rely on clean water here.” Ereckson’s project will entail a riparian restoration project along a portion of Rowlett Creek, as well as working with the Connemara Conservancy in a wetlands enhancement project.

Olson Elementary will continue work on prairie grass restoration plots in the Connemara Conservancy’s meadow and begin monitoring water quality along Rowlett Creek. These two schools along with the Connemara Conservancy monitoring site will help provide a more in-depth picture of what is happening in this section of Rowlett Creek.

Allen High School students are creating an example of “Green Infrastructure” by constructing a bioretention area at Allen Station Park. A bioretention area slows down the flow of the water with the ultimate goals of erosion reduction, and...
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filtering contaminants out of water runoff, such as fertilizers and oils, and improves the quality of the water without a treatment plant. Allen High School’s three sites are along Cottonwood Creek in the city of Allen will provide data to help evaluate the effects of their bioretention area on water quality.

Coppell High School is restoring a portion of Coppell Nature Park to a native Blackland prairie and monitoring the effect of the restoration project on water quality at the tributary within the nature park (the tributary feeds Cottonwood Creek, similarly named but not related to prior Cottonwood Creek).

All of the above mentioned projects are in the Trinity Watershed and include multiple partners such as the Heard Museum, Texas Parks and Wildlife Department, the Connemara Conservancy, which provide resources for students’ Healthy Habitats projects. The student groups are also using Vernier probeware to record water quality. Students will perform a comparison study between the probeware and TST water quality monitoring methods. Students are currently collecting habitat baseline data through multiple field techniques on soil moisture, soil types, native and invasive species, etc. The data is integrated into the Esri ArcGIS software to create maps for presentations to various agencies and perform different types of analyses that are then used in their Healthy Habitat action plans. Healthy Habitats projects such as these are especially important to teachers because they address multiple Texas Essential Knowledge and Skills (TEKS) and bring science, technology, engineering, math (STEM) education into the classroom in a new and engaging approach.

“Students love to get their hands dirty and hands-on projects like these engage their learning and inspire them in a way that enhances what they learn in the classroom,” said Laurie Merrick. The environmental stewardship behaviors that they learn will be invaluable as Texas addresses water issues in the future.

For more information check out our Facebook page: <http://www.facebook.com/HealthyHabitats>.
Plum Creek Watershed Partnership Update

(Continued from page 1)

Long-term sustainability of the partnership has been a major discussion for the last three years. The Guadalupe-Blanco River Authority (GBRA) received a new three-year grant for $360,000 for additional funding from the Texas State Soil and Water Conservation Board. The purpose of the grant is to fund a local watershed coordinator position and implement educational activities related to watershed protection and management.

Nikki Dictson and Debbie Magin, GBRA Director of Water Resources, coordinated sustainability meetings with area city councils, county commissioners, water boards and other entities within the partnership to provide updates on the watershed protection project and coordinate development and approval of an interlocal agreement. These meetings resulted in the development of an interlocal agreement with partner entities to provide the 40 percent local matching funds required to secure the new implementation grant. The $120,000 annual budget for the new project requires $48,000 in matching funds annually.

The 12 collaborating entities that have signed the interlocal agreement are: Caldwell County, Hays County, the cities of Lockhart, Luling, Kyle, Uhland and Buda, the Guadalupe-Blanco River Authority, Plum Creek Conservation District, Polonia Water Supply Corporation, the Hays County Soil and Water Conservation District and the Caldwell-Travis Soil and Water Conservation District.

The partnership is currently starting the fourth year of implementation of the Plum Creek watershed protection plan and there already have been numerous efforts toward improving water quality within the watershed.

The new coordinator position is based in Lockhart, but will work across the entire watershed area, in Caldwell and Hays counties. The new coordinator, Nick Dornak started on March 1, 2012 and he will conduct water resource and related environmental outreach and education efforts across the watershed that have been identified in the watershed protection plan.

As part of this effort, a variety of training programs will be conducted in the watershed to target different potential sources of water pollution, including homeowner workshops for on-site septic systems and aerobic systems, nutrient management for urban areas and agricultural crops, feral hog management, as well as a workshop on reducing pollution and managing growth. The coordinator will track the projects that are ongoing and assist the partners with obtaining additional technical and financial resources needed to improve water quality.

The draft Plum Creek Watershed Protection Plan Update details implementation and educational efforts to reduce pollution. The Update was developed by stakeholders and drafted by AgriLife Extension. A public comment period was held during January and February to allow watershed partnership members to provide comments on the report and discuss the progress of the efforts to reduce pollution with those in attendance. Stakeholder feedback and comments on the progress and implementation efforts of
the watershed protection plan are critical to ensure we are capturing all of the projects and activities occurring in the watershed. It is equally important that the partnership is incorporating any new, potential avenues of programs or funding into the Update.

The public comment period closed on February 17, 2012. All of the comments, edits and additional information will be incorporated into the final Plum Creek Watershed Protection Plan Update report.

The next quarterly meeting of the Plum Creek Watershed Partnership will take place at 6:30 p.m. on Thursday, May 3, 2012, at the Lockhart State Park, 4179 State Park Road in Lockhart. Those interested in getting involved or learning more about the project are encouraged to attend.

The park is located south of Lockhart off U.S. Highway 183 and Farm-to-Market Road 20. To drive to the park’s Recreation Hall, go southwest on FM 20 for two miles to Park Road 10, enter the park, then travel one mile south on Park Road 10.

For more information visit our website at [http://plumcreek.tamu.edu](http://plumcreek.tamu.edu). The project will be transitioning from AgriLife Extension to Nick Dornak over the next few months. Nick Dornak can be contacted by email at ndornak@plumcreekwatershed.org, 512-213-7389 and by mail at 1403 Blackjack Street, Suite B, Lockhart, TX 78644. Nikki Dictson can be contacted at n-dictson@tamu.edu, 979-575-4424, 2474 and by mail at TAMU, College Station, TX 77845

Funding for the Plum Creek Watershed Partnership was provided through a Clean Water Act Section 319(h) grant from the nonpoint source grant from the Texas State Soil and Water Conservation Board and the U.S. Environmental Protection Agency.

Commemorating Volunteers

By Jessica Snider, Texas Stream Team

As with any organization, we sometimes lose volunteers due to family, health or job related issues. We are always sad to lose any of our wonderful volunteers, and are grateful for all the hard work and valuable time they spend with us.

We would like to commemorate the following volunteers - they will be greatly missed:

Ralph Harper – Houston Galveston Area Council - Mr. Harper passed away in August of 2010. We send our condolences to his family and friends. It is saddening to lose a friend and fellow volunteer.

Richard Chambers – Houston Galveston Area Council – leaving due to health issues.

Leslie White – Colorado River Watch Network – leaving due to health issues.

Darrell Powell – Friends of the River San Bernard – leaving due to health issues.

What’s changed on our website...

- Pages updated: Publication, Monitors, and Partners

- Forms & Documents have been organized in submenus for user convenience


- Contact <txstreamteam@txstate.edu> Or call 1-877-506-1401
Myra Winfield, Post Oak Creek, Spanish Oak Creek, and “Myra’s Pond”

Nestled away in a small country home that she and her husband built with their own hands, Myra Winfield is watching the Austin-area expansion come closer and closer to her land. I visited Myra to conduct a quality-control site visit this January. Her home is just a short drive off of the US-183 toll road extension in Leander. Not far from the entrance of the property, a clear-cut path that will house a pipeline carrying water from Lake Travis to Cedar Park serves as a testament of changing times for her.

With 84 years behind her, Myra has seen a lot of changes in Leander. One of these changes came to fruition in 1999 when her grandson contracted a gastrointestinal disease, which ailed him for the entire summer after swimming in the flood control reservoir on her property.

After doing some research, Myra discovered the lift station at the brand new wastewater treatment plant in Cedar Park had failed that weekend, resulting in the discharge of raw sewage into a creek that feeds the reservoir on her property.

Since then, she has consistently sampled four sites on her property once a month. She samples Cottonwood Creek, Post Oak Creek, Spanish Oak Creek, and the flood control reservoir, which she simply calls Myra’s Pond, all of which are located in the Brazos River Watershed. Myra, like many volunteer monitors, is a retired chemist who enjoys being able to utilize the knowledge and skills she cultivated during her professional career. She demonstrates a passion for monitoring and ensuring that the data she collects are of the highest quality.

After seeing consistently low results in the bacteria sampling tests, usually around 10-20 cfu/100mL, Myra can rest assured that “Myra’s Pond” is safe for her grandchildren. As we drove from Myra’s Pond to her home and waited for the peafowl to cross the road, she has 10, she told me she would like to be trained as an advanced water quality monitor so that she can monitor nutrients, turbidity, and streamflow. After monitoring consistently for 13 years, Myra shows no signs of slowing down. Cottonwood Creek, Post Oak Creek, Spanish Oak Creek, and Myra’s Pond are in good hands.

All three creeks drain into the CSC4 Reservoir on Myra Winfield’s property (aka Myra’s Pond). Pond reservoir overflow drains into stream segment 1244A of the San Gabriel River Watershed of the Brazos River Basin (Brushy Creek Above South Brushy Creek).
Everyone couldn’t help but reminisce on the summer of 2009 when the creek went completely dry in most places, killing many of the fish that attract anglers to the park. At the same time, everyone told stories of the creek flooding into the campgrounds in the past but that vision seemed a long time ago...in a Texas far, far away. It’s easy to forget what a flood looks like when you haven’t seen rain in what feels like ages. Park caretakers carefully transplanted fish from vanishing pools into deeper areas to aid in their survival. While not the most optimistic option, we had to try to save some fish by whatever methods were available.

In October 2011, it started raining fairly consistently. After such a long dry spell, even a quarter-inch at a time seemed like record-breaking precipitation. Then, this past January 25th, we recorded 7 inches of rain in just a few hours in our small Clear Fork Creek watershed. All of the sudden, a low flowing creek was difficult to fathom. The old axiom “feast or famine” came to mind as an obvious reality. Now, we were transplanting fish from flood pools back into the fully flowing creek, which is a much more pleasant position to be in for the fish.

I had conducted monitoring on January 23rd, two days before the flood and again after the flood on February 1st in order to record the water quality difference. I waited a week for the majority of the run-off to wash downstream in order to eliminate monitoring primarily storm flow instead of ambient creek conditions. The results were in some ways, fairly surprising.

Specific conductance dropped considerably after the flood from 750 μS/cm before the flood event to 320 μS/cm after (microsiemens/centimeter). I hypothesized that the dissolved solids in the stream would be made much higher from the fast moving run-off but the dilution factor is not to be underestimated. Dissolved oxygen dropped from 9.5 mg/L to 8.6 mg/L - both healthy readings either way. The pH reading dropped from 7.5 to 7.1 standard units, another healthy reading for aquatic inhabitants. But with the Watershed Protection Plan in the Plum Creek watershed focusing so much on high bacteria levels, I was not surprised to find the bacteria had risen considerably from 106 cfu/100mL to 489 cfu/100mL (colony forming units/milliliter). This could have been apparent from the cow patties seen floating in the floodwaters a week before. Let’s not forget that observational data can be just as valuable as chemical monitoring.

The next time there is even minor flooding here at the park, I will be interested to monitor the changes. I just hope I’m lucky enough to have monitored prior to our next flood, as I was this time. It’s hard to predict when the rain will drop in bucket loads, but we’ll welcome it any time! Visit us...Lockhart State Park at: <www.facebook.com/LockhartStatePark>.
Data Quality Reminder –
How to ensure data quality

By Neal Denton, Texas Stream Team

It is extremely important that volunteer water quality monitor data are of the highest quality so data users have confidence in the results. As long as every volunteer monitor is conducting the procedures in the exact same way, the only variable should be the water chemistry itself. To ensure that procedures are conducted correctly, Texas Stream Team (TST) recommends that monitors schedule a quality control site visit with TST or partner agency staff twice in their first year on monitoring and once a year thereafter. To expedite this process, TST now offers online quality control self-assessments. If you are due for a quality control session, please contact TST or partner agency staff or visit the TST website <http://txstreamteam.rivers.txstate.edu/monitors/quality-control-self-assessment.html> and complete the self-assessment.

Quality assurance officers, along with partner agencies or monitoring groups, are responsible for noticing errors on the monitoring forms and contacting volunteer monitors regarding consistently repeated errors. As the TST Quality Assurance Officer, I review the forms submitted by monitors who are not associated with a monitoring group or partner agency. In the coming months, we will be moving uniting individual monitors with partners and/or groups where possible. The information below is an overview of common errors seen when reviewing the forms.

Sampling Time and Location:

Daily and seasonal fluctuations in water chemistry will affect the results. To avoid collecting data, which presents inaccurate variations in long-term conditions, volunteer water quality monitors should collect their sample on a routine schedule at roughly the same time of day. The most common schedule is monitoring once a month. If you are monitoring once a month and the first monitoring event occurs on March 8th at 3:00 p.m., then the next monitoring event should be on April 5th at 3:00 p.m. because April 5th is four weeks after March 8th. If you are unable to monitor at this time, TST recommends that you monitor on a date as close to your scheduled date as possible and at the same time of day. It is more important that the sample is collected at the same time of day because of natural, daily fluctuations in water temperature and dissolved oxygen. If it is impossible to monitor at the same time of day, we recommend monitoring as close to the designated time as possible. Please do not skip a monitoring event because you cannot sample exactly on schedule. We ask only that volunteers monitor at approximately the same time of day every four weeks.

Completeness:

Every environmental monitoring form must be completely filled out. This includes the time spent sampling and traveling, the distance traveled, and the number of participants. These figures are used for grant reporting to our funding agencies and for new grant applications.

Some monitors are not recording their group ID or station ID. If you do not know your group ID or station ID, please contact our office. Another commonly missing data record is the Secchi disk transparency or total depth. Even if the waterway you are sampling is only 0.1 meters deep, please record this as your total depth. Although this may not seem like significant information, it is still meaningful because lower flows affect water chemistry. All data sets should be complete. Also be aware that we are now training monitors to use the Transparency Tube and to monitor turbidity quantitatively (contact txstreamteam@txstate.edu or training information). Transparency tube monitoring enables monitors to achieve a more accurate transparency measurement.

Sample Depth vs. Total Depth:

Please record the sample depth as the depth at which the sample is drawn. In contrast, the total depth measurement is the distance from the water surface to the bed of the water body. If the water body is deep enough, the sample depth should always be 0.3 meters (roughly one foot). If it is not deep enough, sample at half of the total depth. For example, if your total depth is 0.2 meters, your sample depth would be 0.1

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Calibrating the Conductivity Meter:

The conductivity meter must be calibrated within 24 hours of its use. The conductivity value will not be entered in the database unless all of the fields required for the conductivity meter calibration are completed. Make sure your conductivity standard solution is kept at room temperature. The reason monitors are required to record the temperature of the standard solution is that if it exceeds 32 °C (~90°F), then the calibration is not accurate. Also, please note that a post test is not required for calibrating the conductivity meter if the temperature is recorded. This field should be left blank in most cases. The meter should be calibrated to a value closest to the values being observed. If you typically see conductivity values around 600 µS/cm, then you should calibrate with a solution close to 600 µS/cm. If you're seeing values closer to 1,200 µS/cm, then you should calibrate with a standard solution close to that value. Please contact TST, group leader, or partner agency staff if you need a different standard solution.

Converting Conductivity Values:

There are three conductivity meters currently in circulation. One measures in microSiemens per centimeter (µS/cm). One measures in milliSiemers per centimeter (mS/cm), and one measures in both values. All values should be reported in microSiemens per centimeter. If you are using Total Dissolved Solids (TDS) Tester 3 (Low), then no conversion is necessary. If you are using TDS Tester 4 (High), then you must convert the values by multiplying by 1,000 or moving the decimal place three places to the right. For example, a value of 3.4 mS/cm should be converted to 3,400 µS/cm. If you are using the TDS Tester 11, which measures in both values, please take note of the small display on the screen indicating which values are being reported and convert the values if necessary. Also, be sure to report the type of meter is being used using the provided check box.

Measuring Secchi Disk Transparency:

If your Secchi disk reaches the bottom and you can still see it, indicate this by recording the depth measurement in the Secchi disk transparency box on the monitoring form, and then placing a greater than symbol (>) in from of the value. For example, if your Secchi disk is on the bottom of the creek and the water depth at that point is 1.56 meters, the value you write in the box is > 1.56 meters and write. See pages 29-30 of the TST Water Quality Monitoring Manual to read detailed information about Water Transparency and Total Depth procedures.

Measuring Dissolved Oxygen:

Please remember that the two dissolved oxygen titration results should be within 0.5 mg/L of each other. If they are not within 0.5 mg/L of each other, conduct BOTH titrations again and only record those results.

Measuring E. coli Bacteria:

Every E. coli bacteria monitor should conduct a field blank sample. Conducting the field blank proves to data users that the only source of bacterial contamination is the water sample being monitored. This should be conducted once a month or on 10% of samples if more than one sample is taken per month. Please consult the TST Water Quality Monitoring Manual for more information. Some monitors have been leaving this question unanswered on the monitoring forms. If the field blank is not conducted, the results cannot be entered into the database.

Recording Precipitation Data:

Given the dry conditions associated with the current drought in Texas, many monitors have been recording the days since significant precipitation with a greater than symbol (i.e. >160). It is unfortunately impossible to enter this value into the database. An actual value is needed. For assistance with retrieving this value, please visit the TST website and locate the “Precipitation Data Sources” page under the “Monitors” tab.
Upcoming Events

April 2012

April 14, 2012 - Jacob’s Well Volunteer Training - Join trainers for two consecutive Saturdays (April 14, April 28, 2012) 9 am to 2:30 pm. See flyer for more details. $25.00 Suggested Donation Contact Barbara Attwell battwell@earthlink.net, 512-263-2054.

April 21, 2012 - Earth Day Celebration - Hosted by The Lindheimer Chapter of Master Naturalists - 10:00 am to 4:00 pm; Tye Preston Memorial Library located at 16311 South Access Rd at Canyon Lake. This event is free to the public. Visit our booth...

May 2012

May 5, 2012 - RIPARIAN WORKSHOP 8:30 a.m. to 3:30 p.m., at the United Cooperative Services, 3309 N. Main Street, Cleburne, Texas 76033. Limited to 40 Participants. $11.00/person. Contact Carrie.McLaughlin58@gmail.com.
Registration Deadline: April 30, 2012