

# Outreach and Education Strategy

## ***PUBLIC OUTREACH***

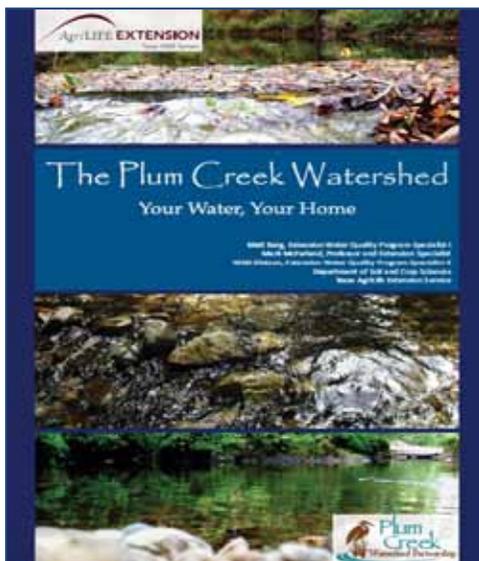
Education of citizens in the watershed to increase awareness and involvement continues to be of tremendous significance in the push to reduce nonpoint source pollution and will be a key focus of the Partnership's efforts throughout implementation. A major success for the Partnership was the acquisition of TCEQ CWA §106 funds to support the *Taking Charge of Water Quality in the Plum Creek Watershed* project to conduct a significant portion of the educational activities outlined in the WPP. Many of the resources developed through this project have been adapted and utilized in other watersheds across the state, and the effort has received multiple awards for its creativity and effectiveness. In coordination with this project and other Partnership efforts, AgriLife Extension, GBRA, and TSSWCB have produced numerous publications, press releases, and newsletters directed toward watershed stakeholders. In addition, multiple websites and educational modules have been developed as information and education resources for the public in Plum Creek and across the state.

### *Plum Creek Watershed Protection Plan*

The Plum Creek WPP is a 176 color document that can be found electronically at the Plum Creek Website at <http://plumcreek.tamu.edu/WPP>. Over 750 copies have been printed and distributed throughout the watershed at Partnership Meetings, city council and county commissioner court meetings, field days, workshops, and other events.

### *Watershed Protection Campaign Brochure*

AgriLife Extension developed a brochure entitled *The Plum Creek Watershed: Your Water, Your Home* (Figure 11) which summarizes Partnership efforts and provides basic management practice recommendations. Hardcopies of the brochure are available at all Partnership sponsored and supported meetings and approximately 7,200 copies have been distributed to counties, cities, homeowner associations, schools, and other organizations to engage a broader audience in the local watershed effort. The brochure also is available on the Partnership website.



**Figure 11. Brochure produced for the Plum Creek WPP.**



### Texas Watershed Steward Workshops



In addition to the pilot session of the Texas Watershed Steward Program in Kyle in December 2007, a second workshop was conducted in August 2008 in Luling. AgriLife Extension coordinated the effort with the Partnership.

Texas Watershed Steward is a science-based watershed training program that helps citizens identify and take action to address local water quality impairments. The Texas Watershed Steward Program is funded through Clean Water Act §319(h) nonpoint source grants from the Texas State Soil and Water Conservation Board and the U.S. Environmental Protection Agency. A total of 128 participants attended the two workshops. Six-month follow-up evaluations indicated that as a result of the training events:

- 95% of participants were better equipped to be stewards of their watershed.
- 93% now more closely monitor individual actions that can impair water quality.
- 72% indicated an intention to participate in community cleanup activities.
- 57% indicated an intention to get involved in local planning/zoning decisions.
- 74% indicated an intention to communicate water issues to elected officials.
- 60% indicated an intention to help develop a plan for their watershed (WPP).
- 55% indicated an intention to help form or become a member of a local watershed group.
- 85% indicated an intention to adopt new BMPs to help protect their watershed.

### Volunteer Monitoring

Texas Stream Team is an environmental education and monitoring program administered by Texas State University-San Marcos funded through a 319 grant from TCEQ. Texas Stream Team is a network of trained volunteers collecting water quality data on lakes, rivers, streams, wetlands, and estuaries across the state. Stream Team held a volunteer monitor training in 2010 in Kyle for 25 participants in addition to their trainings regularly held in San Marcos. Stream Team volunteers monitor 17 locations in the Plum Creek watershed (see Figure 13).

Stream Team has also conducted educational booths at events in the watershed including:

- April 17, 2010 – Used the NPS model in presentations to 57 people at the Earth Day Share Fair at City Square Park in Kyle.
- September 25, 2010 – Attended the Lockhart Town Branch Clean-Up at City Park in Lockhart. There were 47 participants aged 5-12. The booth included information about bacteria levels in Town Branch, data reports, and other publications provided at all outreach events.
- November 3, 2010 – Provided a NPS Environmental Education Presentation using the watershed model to 2 classes (31 students, 2 teachers) at Kyle Elementary in Plum Creek watershed (in coordination with GBRA).
- November 8, 2010 – Provided a NPS Environmental Education Presentation using the watershed model to 4 classes (74 students, 2 teachers) at Bluebonnet Elementary (Lockhart) in Plum Creek watershed (in coordination with GBRA).
- February 26, 2011 – Provided NPS and monitoring education and information to 150 people at the City of Kyle's Plum Creek clean-up event.
- April 16, 2011 – Provided an NPS outreach presentation to over 31 attendees at the City of Kyle Earth Day Share-Fair. Children were led through a hypothetical fish kill scenario wherein they learned about NPS pollution. A booth was conducted by staff on NPS pollution in the Plum Creek watershed and they distributed relevant publications.

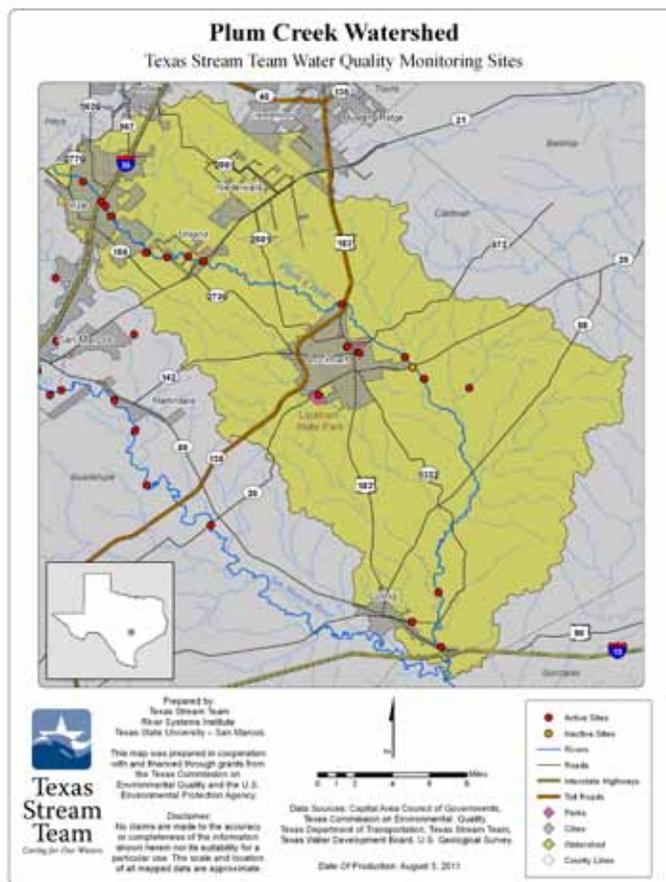


Figure 13. Map of volunteer monitoring locations in Plum Creek Watershed.

### GBRA's Plum Creek School Water Quality Project

To promote youth education and involvement in the Plum Creek Watershed Partnership, a water quality monitoring program was initiated in the 2006-2007 school year and is being conducted annually. Over 4,000 students and approximately 80 teachers from 13 Hays ISD, Lockhart ISD, and Luling ISD schools have participated in classroom instruction and hands-on investigation of water quality in Plum Creek since 2006. The program was initiated and is led by GBRA. The program for the 2011-2012 school year will happen in the spring semester since the drought has dried up most of the creek sampling locations that the schools were utilizing for the program. GBRA and the science teachers hope that the rains will return and there will be water in the creeks near the schools to sample and conduct the program. Science teachers at each school are trained in basic water quality monitoring techniques. Water monitoring test kits, supplies, poster-sized watershed maps, and student workbooks are donated to the schools by GBRA. In addition, packets of educational information about the watershed and water quality issues are sent home with the students that include *The Plum Creek Watershed: Your Water, Your Home* publication.

As a part of this program in 2008 and in concert with a Service Learning Grant, a group of students at Luling High School developed an interest in collecting data on local waterbodies. The students and teachers created the Luling River Pals who were trained by GBRA and Texas Stream Team as volunteer water quality monitors. The Luling River Pals monitored local creeks through 2010 and worked with the elementary school students in Luling as part of their project.

### Plum Creek Watershed Kiosks in Kyle, Lockhart and Luling

Three new Plum Creek Watershed kiosks were set up in Kyle, Lockhart, and Luling during 2011 for the public to learn more about the watershed, water treatment and watersheds in general. These new interactive kiosks display educational modules by touch screen enabling the user to participate in mini-lessons on water subjects including watersheds and nonpoint source pollution, the wastewater treatment process, and the operation and maintenance of aerobic and conventional septic systems. They also include links to real-time data for Plum Creek, which means that users are able to look at the current temperature, pH, dissolved oxygen, conductivity, turbidity, and flow at sites along the stream. Additional links are available for historical data including the Texas Commission on Environmental Quality Clean Rivers Program, GBRA, the Plum Creek Watershed Partnership, and the city's website. Three kiosks were designed by GBRA, and funded by the Texas State Soil and Water Conservation Board through an EPA Clean Water Act Section 319 (h) Nonpoint Point Source Pollution Grant Program.

### Tributary and Watershed Roadway Signage

The Partnership contacted the Texas Department of Transportation (TxDOT) to request permission to install roadway signage marking Plum Creek tributaries and entrance points to the watershed. However, the request was denied by TxDOT, who opposed any nonessential signage that does not provide directions to motorists. Sign installation has been approved in other watersheds, including the Arroyo Colorado watershed and Lake Houston watershed in the state, and it is unclear why there is variation among TxDOT offices and policies. Nevertheless, the Partnership will continue to pursue this outreach strategy as a highly visible means of boosting awareness of the Plum Creek watershed among local stakeholders and watershed users. TSSWCB CWA §319(h) funds were originally dedicated for purchasing and installing signs as part of this effort.

The use of highway billboards to promote Partnership efforts and general watershed stewardship also has been investigated, but some members of the Steering Committee prefer less intrusive means of promotion and advertising so the Partnership is no longer working towards this task and voted to remove it from the implementation goals.

### Outreach at Local Events

The Partnership participates actively in several local annual events that have a strong environmental stewardship component. These include the City of Kyle's Plum Creek Watershed Clean-Up, the City of Lockhart's Town Branch Clean-Up, and the Luling Foundation Field Day. Since 2006, approximately 3,907 individuals have been reached with information on Partnership efforts in the watershed through these events. In addition, thousands more have been reached through educational programming and meetings with various entities within the watershed.

### Rainwater Harvesting Education

AgriLife Extension conducted three workshops in July and August 2008 in Hays County on the benefits of rainwater harvesting and procedures for system installation and management. Over 300 individuals participated. Hays County Extension conducted a rainwater harvesting workshop in September 2011 in San Marcos with 28 participants. In addition, a number of permanent rainwater harvesting displays have been installed at venues in and around the Plum Creek watershed, including the Hays County Extension office and the Luling Foundation Farm.

## ***URBAN OUTREACH***

### *NEMO workshops*

TCEQ CWA §106 funds were used to conduct two Nonpoint Education for Municipal Officials (NEMO) workshops targeting city and county employees and elected officials, with coordination by AgriLife Extension, Sea Grant, and GBRA. The events were titled *Managing Urban Growth: Quality of Life and Environmental Issues* and included topics such as smart growth, low impact development, stormwater management, and reducing impervious surfaces. Individual workshops were tailored to the northern (February 2008 – 48 attendees) and southern portions of the watershed (May 2008 – 43 attendees) and included municipal officials from across the watershed and surrounding counties.

### *Online Stormwater Management Module*

TCEQ CWA §106 funds also enabled GBRA to develop an online educational module for municipal operations employees outlining the processes and best practices for urban stormwater management. The module has been promoted among watershed cities and is available on the Partnership and GBRA websites at <http://www.gbra.org/stormwater/default.aspx>. A total of 1,343 unique visits to the website since it was developed in September 2009.

### *Stormwater Management Demonstrations*

No additional stormwater management demonstrations have taken place in the watershed since the events in June and July 2007 prior to the release of the WPP. The event in June in downtown Kyle had 28 in attendance and 19 attended the event at the business park in Lockhart in July. Upon completion of the municipal stormwater assessments and review of the associated recommendations, additional demonstrations may be warranted as cities formulate decisions for the selection and placement of additional controls. The City of Kyle adopted an ordinance in November 2011 that includes the use of stormwater mulch tube filters at environmentally sensitive construction sites.

### *Site Assessment Visits*

As a component of the TCEQ CWA §106 funds received to conduct watershed outreach, TCEQ personnel conducted nine non-regulatory site assessments of water supply facilities, wastewater treatment facilities, private companies, and municipal operations facilities. These visits are voluntary and provide confidential recommendations for pollution prevention strategies to the operators at each site.

### *Urban Sector Turf and Landscape Management*

The Partnership worked with AgriLife Extension's Sports and Athletic Field Education (SAFE) program to conduct a 6-hour training event in March 2009 for 49 personnel from area parks departments and school athletics departments. The workshop provided education tailored to management of golf courses and other sports and athletic fields, with topics including fertilizer and pesticide selection and use, irrigation management, aeration of soils, and cultural practices such as mowing height and frequency. Attendees received classroom training at the Hays County Extension Office and then participated in a hands-on irrigation audit demonstration at a local San Marcos Sports Complex.

Household Hazardous Waste Collection Events

A TCEQ CWA §319(h) grant awarded to the City of Lockhart includes provisions for hosting an annual hazardous and electronic waste collection day. Lockhart held two events on Saturdays in April during 2010 and 2011 (Table 8). The City of Lockhart's project also provided for expansion of services at the city recycling center to include disposal of kitchen fats, oils, and grease in addition to existing oil, oil filter, and antifreeze disposal services. A collection tank for grease and cooking oils was placed at the Lockhart Recycling Center so the material can be removed and recycled into products such as animal feeds and ingredients used in consumer and industrial products like soaps, cosmetics, rubber and plastics.

**Table 8. Lockhart hazardous waste collection events results during 2010 and 2011.**

Lockhart Hazardous Waste Collection Events					
Year	Total # Households	HHW collected in lbs	Hazardous Paint in lbs	Lead Acid Batteries in lbs	Cost of Hazardous Materials contractor Services
2010	250	5,661	13,287	225	\$13,428
2011	288	3,651	11,561	20	\$11,366
Total	538	9,312	24,848	245	\$24,794

**SEPTIC SYSTEM OUTREACH**Online Septic System Module

TCEQ CWA §106 funding also supported GBRA and AgriLife Extension efforts to develop an online module to address the proper function and maintenance of septic systems. Illustrating both conventional and aerobic systems, the module was developed for septic system owners, professional installers, maintenance providers, and inspectors. The module is available in both English (<http://www.gbra.org/septic.swf>) and Spanish (<http://www.gbra.org/septic-spanish.swf>) and can be found on both the Partnership and GBRA websites. These websites have received 5,776 unique visitors for the English version and 340 unique visitors for the Spanish version during January 2009-November 2011. While initial efforts focused on local municipal officials, school teachers, and residents in the Plum Creek watershed, this module has been promoted across the state and has been utilized in several other watershed efforts.

Septic System Workshops

AgriLife Extension conducted a total of seven septic system operation and maintenance workshops in Caldwell and Hays Counties with support through TCEQ CWA §106 funds during 2008-2009. Four events were tailored to homeowners (two each addressing conventional and aerobic systems), and two events targeted practitioners. An additional train-the-trainer course was aimed at developing capacity for local designated representatives to deliver maintenance courses to homeowners. Overall, 118 practitioners and 74 homeowners participated in the workshops (Table 9). In addition, AgriLife Extension provided watershed maps and technical assistance to designated representatives in the watershed to aid in addressing local septic system issues. To complement septic system outreach efforts, over 50,000 copies of several different septic system management factsheets were delivered to cities and counties for distribution throughout the watershed.

**Table 9. Onsite wastewater trainings in Plum Creek.**

Onsite Wastewater Trainings	Date	Participants	Hours	Contact Hours
OSSF Practitioners	8/26/2008	60	8	480
OSSF Homeowners	8/29/2008	19	6	114
Aerobic Treatment Training San Marcos	5/27/2009	37	8	296
OSSF Practitioners	5/28/2009	49	8	392
OSSF Training San Marcos	6/23/2009	10	8	80
Aerobic Treatment Training Lockhart	6/24/2009	10	6.5	65
Aerobic Treatment System Train the Trainer	7/28/2009	11	17	187
Total		196	61.5	1,614

## ***MUNICIPAL WASTEWATER OUTREACH***

### *Online Wastewater Treatment Facility Module*

TCEQ CWA §106 funds were used by GBRA to develop an online informational wastewater treatment module that addresses treatment methods and processes and explains the importance of proper wastewater management to protect the quality of receiving waters. In addition to being distributed to public officials and watershed residents by email and over 760 post cards, this module was sent to wastewater facility operators for use in educating the public. The module is available on both the Partnership and GBRA (<http://www.gbra.org/wastewater-treatment.swf>) websites and has received 15,228 unique visitors since January 2009 through November 2011. The educational module was selected by the Water Environment Association of Texas for the 2008 Presidential Award for Outstanding Effort Toward Public Outreach and Communication (Figure 14).



**Figure 14. 2008 Presidential Award for Outstanding Effort Toward Public Outreach and Communication for the wastewater module.**

### *Online Fats, Oils, and Grease Module*

TCEQ CWA §106 funds supported the development of an online training module to outline management practices for handling fats, oils, grease. The module also addresses proper use and disposal of household hazardous chemicals and is geared toward both businesses and homeowners. The module is available on the GBRA and Partnership websites (<http://www.gbra.org/fog.swf>) and <http://plumcreek.tamu.edu> between January 2009 and November 2011 recorded 510 unique visitors.

### Fats, Oils, and Grease Workshops

TCEQ CWA §106 funds designated for conducting outreach in the watershed expired before TCEQ could host workshops for restaurants and apartments on proper management and disposal of fats, oils, and grease. Also, the TCEQ Small Business Assistance Program no longer conducts these workshops. The GBRA online fats, oils, and grease module will continue to be promoted and the City of Lockhart currently has a FOG educational program and recycling program.

## **AGRICULTURAL OUTREACH**

### Soil and Water Testing Campaigns

Annual county-based soil and water testing campaigns have been conducted by AgriLife Extension in Hays and Caldwell Counties during 2009 and 2010. Landowners submitted 148 samples for the 2009 campaign and 164 samples for the 2010 campaign. Agricultural operations were represented by 280 of the 312 samples for 10,298 acres. Projected fertilizer savings based on soil tests for agricultural operations were an estimated 202,075 pounds of nitrogen and 320,250 pounds of phosphate compared to rates proposed before testing. This management practice provided not only environmental benefits by reducing nutrient loading to the soil and potentially to water resources, but also created the opportunity for an economic impact estimated at \$302,948 in cost savings. Over 80% of lawn and landscape samples received a recommendation for no application of P fertilizer due to high soil test levels. These programs are supported by TSSWCB §319(h) funds that help defray costs for watershed residents.

### Nutrient, Crop, and Livestock Grazing Management Education

Routine programming for Caldwell County has included multiple events on nutrient, crop, and livestock grazing management each year. Personnel turnover in both the Caldwell and Hays Counties have resulted in periods where both have been without Agricultural and Natural Resource Extension Agents in place to coordinate educational activities. The following activities were conducted in Caldwell County through May 2011.

- 2010 Beef Cattle Nutrition Class Series – Sept. 2, 7, 14 – 18 attendees
- Luling Foundation Water Field Day – Oct. 29, 2010 – 162 attendees
- Row Crop Conference – Feb. 14, 2011 – 35 attendees
- Luling Foundation Forage Field Day – March 31, 2011 – 42 attendees
- Beef Cattle Short Course – April 8, 2011 – 23 attendees



The Lone Star Healthy Streams Program – Grazing Cattle Component (LSHS) is a coordinated and comprehensive education program designed to increase awareness of the water quality issues associated with livestock, expand the overall knowledge of how to improve the management of grazing lands by landowners, and encourage voluntary implementation of BMPs to reduce the runoff of pollutants from grazing livestock operations. LSHS builds on recent research and demonstration projects, conducted and funded by a variety of entities, which evaluated the effectiveness of BMPs to improve water quality impacted by grazing cattle. LSHS will be delivered via local workshops in priority watersheds across the state and computer-based trainings. Implementation of LSHS is designed to increase the utilization of technical assistance and financial incentives available to landowners to voluntarily implement BMPs targeted to

manage the impact of livestock. While the curriculum is still being developed, the Program has been piloted in several watersheds, including Plum Creek. LSHS is implemented through a partnership between the Texas AgriLife Extension Service, the Texas Water Resources Institute, and the TSSWCB. The Program is supported through CWA §319(h) grants from TSSWCB and USEPA. More information on the Lone Star Healthy Streams Program is available at <http://lshs.tamu.edu/>.

To date, the following LSHS programs have been delivered in the watershed:

- October 29, 2010 – Luling Foundation Water Field Day – 162 individuals
- March 3, 2011 – Caldwell County – 31 individuals
- August 26, 2011 – Caldwell County Expo presentation – 85 individuals

#### *Agricultural Waste Pesticide Collection Events*

No additional agricultural waste pesticide collection events have been conducted in the watershed since the June 2007 event prior to the release of the WPP. Since these efforts primarily are coordinated between TCEQ and the Texas Department of Agriculture, they have been rotated to other locations throughout the state. As collection events have occurred in nearby counties, they have been promoted by the Partnership. In 2011, TCEQ terminated this program due to lack of funding.

### ***FERAL HOG MANAGEMENT OUTREACH***

#### *Feral Hog Control*

A total of 642 feral hogs have been reported as removed from the watershed, including both producer activity and project-related control programs (Table 7). This has been accomplished through a combination of efforts including workshop training events, direct technical assistance and publications, websites, newsletters, news releases, and related resources.

#### *Feral Hog Management Workshops*

To complement direct landowner outreach on feral hog management, AgriLife Extension has coordinated feral hog management workshops in Luling in February of each year. Attendance has been 185, 130, 350, 279, and 260, respectively, for 2007 through 2011. Attendees are not limited to residents of Plum Creek watershed, and some travel considerable distances to attend. Significant focus is placed on the potential for hogs to harm the environment and degrade water quality, and attendees receive presentations on a variety of management options from various agencies including Texas AgriLife Extension Service, Texas Parks and Wildlife Department, Texas Department of Agriculture, USDA Wildlife Services, and Texas Animal Health Commission. These events are a key avenue for relaying information to landowners in the Plum Creek watershed and beyond. TSSWCB CWA §319(h) funds have been used to cover workshop expenses so that the events are available at no cost to attendees.

#### *Technical Assistance*

The AgriLife Extension Wildlife and Fisheries Assistant stationed in the watershed has provided technical assistance to landowners on feral hog management through 60 site visits and 25 community presentations to over 3,307 attendees. A total of 3528 individuals have obtained direct assistance with approximately 2490 contact hours recorded through November 2011.

### *Feral Hog Reporting System*

AgriLife Extension developed an online feral hog reporting system to track sightings and damage caused by the animals. The system is used by project personnel to target areas for focused management assistance. In addition, the system has been useful in validating the SELECT analysis performed during plan development. A total of 42 public reports have been made, with some from areas not in the watershed. In addition, 16 landowners have reported a total of 270 feral hogs removed from the watershed (see Table 7). The reporting system is located in the feral hog section of the Partnership website. The reporting website has been a beneficial tool in tracking the removal of feral hogs from the watershed. Continued use of this system is suggested with some upgrades: a map visual for identification of hog removal locations, an automated e-mail requesting monthly reports, and a section to better identify the location of the property from which feral hogs have been removed.

### *Feral Hog Management FactSheets*

A significant project accomplishment has been the production of a series of factsheets addressing feral hog management. Developed by AgriLife Extension with TSSWCB CWA §319(h) funds, the following publications (Figure 15) are available on the Partnership website, some with Spanish translations:

- *Feral Hogs, Plum Creek, and You*
- *Recognizing Feral Hog Sign* (Spanish)
- *Box Traps for Capturing Feral Hogs* (Spanish)
- *Corral Traps for Capturing Feral Hogs* (Spanish)
- *Snaring Feral Hogs* (Spanish)
- *Building a Feral Hog Snare* (Spanish)
- *Placing and Baiting Feral Hog Traps* (Spanish)
- *Door Modifications for Feral Hog Traps* (Spanish)
- *Feral Hogs Impact Ground-nesting Birds*
- *Feral Hog Laws and Regulations in Texas*
- *Feral Hogs and Disease Concerns*
- *Feral Hogs and Water Quality in Plum Creek*
- *Feral Hog Transportation Regulations*
- *Using Fences to Exclude Feral Hogs from Wildlife Feeding Stations*

Over 5,000 of the publications have been distributed throughout the watershed and are available on the project website. These publications have been very popular, and a review of website traffic indicates they have been downloaded over 11,430 times from scribd.com, 432 times from the Texas AgriLife bookstore, and 321 times from the Plum Creek Watershed Partnership website. In addition, they have been viewed by visitors from 48 states plus the District of Columbia. Feral hog management has become a significant issue across the Nation, and efforts in the Plum Creek watershed have provided resources that will have a far-reaching impact.

In addition, 10 hardcopy and internet news releases were created with AgriLife Communications. There have been over 20 feral hog blogs posted to the AgriLife Extension Service Wildlife and Fisheries Sciences Department wild wonderings blog at <http://wild-wonderings.blogspot.com/>.

There are 10 feral hog videos on the Wildlife and Fisheries Department YouTube site that have been viewed over 71,000 times. On the Plum Creek Watershed Partnership website, two voice-over power-point presentations are available for viewing. Two radio interviews were conducted with Texas Farm Bureau Radio, which reaches 89 counties in Texas.



Figure 15. Two examples of feral hog management factsheets developed for the watershed.

## ***STREAM AND RIPARIAN WORKSHOPS***

The Partnership coordinated with the Texas Parks and Wildlife Department, USDA Natural Resources Conservation Service - State Riparian Service Team, and the Nueces River Authority to conduct stream and riparian workshops in the watershed. The first workshop was held in Lockhart in October 2010 with 54 participants. A second workshop was coordinated in conjunction with the San Marcos River Foundation and held in San Marcos in May 2011 with over 130 attendees. The workshops targeted landowners with property adjacent to Plum Creek and its tributaries, and focused on management practices to restore and maintain riparian health in these critical areas.

## ***ILLEGAL DUMPING/LITTER PREVENTION CAMPAIGN***

GBRA partnered with Caldwell and Hays Counties to remove trash and debris and discourage littering of streams throughout the Plum Creek watershed. Using TCEQ CWA §106 funds, initial efforts primarily focused on removing trash from sites identified through a stream crossing inventory. Upon completion of debris removal, signs were installed on county roads by the county personnel at 16 sites to discourage dumping. To complement this work and establish an ongoing presence to address illegal dumping, the Partnership cooperated with Caldwell County to secure funding from the Capital Area Council of Governments to support personnel and purchase trash removal equipment. Through the combined efforts of GBRA and Caldwell County, in 2008 a total of 14,320 pounds of refuse were disposed of at the landfill and 3 batteries and 62 tires were properly disposed. A total of 237 man hours were committed to the effort. Through additional collaborations between GBRA and Caldwell County a second round of

cleanups at 9 stream crossings, 4 sites that had been targeted by the original survey project and 5 new locations, were conducted in February 2009. An estimated 8,500 pounds of refuse were collected from Plum Creek and its tributaries including 82 tires, 6 automotive batteries, 2 sofas, 1 drier, 1 refrigerator, 1 motorcycle, 1 television, 6 mattresses and various automotive parts. Totals for the two cleanup efforts were 22,820 pounds of refuse, 9 batteries, 144 tires, and various appliances.

Hays County agreed to assess and cleanup known sites in the Plum Creek Watershed for illegal dumping. Funds from the TCEQ 106 Grant were utilized to purchase signs to deter illegal dumping and they were installed by Hays County. Hays County has done a good job enforcing illegal dumping and keeping the areas clean around Plum Creek.

### ***COMMUNITY CLEAN UP EVENTS IN LOCKHART AND KYLE***

TCEQ CWA §106 funds were used to initiate an annual stream clean-up event for Town Branch in the City of Lockhart and to expand ongoing efforts for the Plum Creek Watershed Clean-Up in the City of Kyle. Citizen volunteers work together to remove trash and debris from tributaries in these urban areas of the watershed. In Lockhart, volunteer clean-up days have approximately 300 participants. These events are used to provide education and increase awareness of broader issues and efforts throughout the watershed (Figure 16). All participants are given educational materials on stewardship of water resources and Partnership activities. The events also are supported by Keep Texas Beautiful and local sponsors, and city funds have and will be used to continue these programs in the future. Unfortunately, Keep Texas Beautiful lost funding for the creek cleanup program that provided educational materials as well as trash pick-up tools, gloves and trash bags for the events. Local sponsors will be sought to cover program costs in 2012.



Figure 16. Community stream clean up events during 2010 in Lockhart (top) and Kyle (bottom).