

TEXAS WATER RESOURCES INSTITUTE
AND
TEXAS TECH UNIVERSITY

Development of the Upper Llano River Watershed Protection Plan
FY 2011 Workplan 11-04

Quarter no. 4 From 7/1/12 Through 9/30/12

I. Abstract

This quarter, approval was received on the QAPPs for both the Task 4 GIS Inventory and Land Use/Land Cover Analysis and Task 5 Water Quality Monitoring allowing work to commence on data collection for both tasks. Much of the GIS data collection and LULC classification has already been completed. The first of four biological assessments was also conducted as well as the first quarterly routine monitoring effort.

The list of stakeholders continues to grow as does interest in the Upper Llano River Watershed Protection Plan. The first public meeting, which informed the public of the WPP project, was held on August 14, 2012. The meeting was well attended with over 90 local stakeholders participating. The second public meeting, which gained consensus on the formation of a 15 member Steering Committee, was held on October 9, 2012. In December, this Steering Committee will hold its first meeting to finalize the membership and organization and make plans for the next year. The TTU-LRFS continued to participate in local SLWA Board, Soil and Water Conservation District, and Rotary Club meetings to keep the public updated on the project. Project efforts received significant media coverage this quarter with a half dozen or more media mentions. Work was also initiated on the first newsletter. Several educational programs were provided to landowners and citizens in the watershed including the Texas Watershed Steward Program and a Conservation Easement Workshop.

Next quarter, routine sampling will continue, the first Steering Committee meeting will be held, the landuse classification and GIS inventory will be completed, and the first newsletter will be completed and circulated.

II. Overall Progress and Results by Task

Task 1 Project Administration

Subtask 1.1 TWRI will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July and October. QPRs shall be distributed to all project partners and posted on the project website.

The following actions have been completed during this reporting period:

- a. The fourth quarterly report was prepared and submitted on October 12, 2012.

25% Complete

Subtask 1.2 TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.

The following actions have been completed during this reporting period:

- a. As of August 31, 2012, \$2,448 (<1%) of federal project funds had been expended.
- b. Progress of Allocations to each Project Partner is as follows:
 - TWRI has expended 3% of their funds.
 - ESSM has expended <1% of their funds
 - SSL has expended 2% of their funds.
 - TTU has expended <1% of their funds.

5% Complete

Subtask 1.3 TWRI will host coordination meetings or conference calls, at least quarterly, with project partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel.

The following actions have been completed during this reporting period:

- a. The second quarterly conference call was held July 5, 2012 at 9:00 am. Kevin Wagner, Jana Lloyd, Tom Arsuffi, Scott Richardson, Emily, Znobias Wooten, Bob Lyons, Tyson Broad, Kendria Ray, and Ken Rainwater participated. Primary action items identified included developing a timeline for upcoming stakeholder efforts, submission of the stakeholder database, finalizing the first public meeting agenda, developing the public meeting notice, distributing the meeting notice and agenda, finalizing project QAPPs, initiating monitoring and LULC classification efforts, and beginning development of the first newsletter.
- b. On July 20, a planning meeting for the August 14th Upper Llano Stakeholder Meeting was held.
- c. On July 31, TWRI and TSSWCB met via phone to discuss project progress and the stakeholder meeting.
- d. The third quarterly project meeting was held on August 14. Meeting notes are attached.
- e. On August 22, the project team met with TSSWCB to discuss the August 14 Stakeholder meeting and begin planning for the second stakeholder meeting.

25% Complete

Subtask 1.4 TWRI will work with project personnel from ESSM, TTU-WRC, TTU-LRFS, and SLWA to prepare the WPP incorporating input from stakeholders and findings of monitoring, modeling, and data analysis tasks.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 1.5 SLWA will continue to host and maintain a website (<http://southllano.org/>) to serve as a public clearinghouse for all project- and watershed-related information. All presentations, documents and results will be posted to this website. The website will serve as a means to disseminate information

to stakeholders and the general public. TWRI and TTU-LRFS shall contribute content matter for the website as appropriate.

The following actions have been completed during this reporting period:

- a. The SLWA website continues to be a resource for stakeholders in the watershed on land and water stewardship, hydrologic and weather conditions, latest news, upcoming events, community participation, and related topics. Specific topics this quarter included:
 - Announcement of Conservation Easement Workshop on September 22, 2012
 - Announcement of October 9, 2012 Watershed Protection Plan Stakeholder Meeting
 - Announcement of Texas Riparian Association Tour
- b. The SLWA continues to update the website to better provide project information to the public. The updated website has been provided to the project team for review prior to posting it on-line.
- c. This quarter (Jul-Sep 2012), a total of 697 unique visitors viewed the website.

25% Complete

Subtask 1.6 The Director of TTU-LRFS will serve as the Upper Llano River Watershed Coordinator and be responsible for the general oversight and coordination of all project activities, reporting requirements, and educational activities, and serve as the primary conduit for interaction with landowners, citizens, and entities to facilitate the development of the WPP. The Watershed Coordinator shall successfully complete (or have already completed) the Texas Watershed Planning Short Course and participate in Texas Watershed Coordinator Roundtables.

The following actions have been completed during this reporting period:

- a. Dr. Tom Arsuffi, Director of the TTU-LRFS and Upper Llano River Watershed Coordinator, completed the Texas Watershed Planning Short Course on November 14-18, 2011.
- b. Project partner Tyson Broad of the South Llano Watershed Alliance completed the Texas Watershed Planning Short Course on September 24-28, 2012.

100% Complete

Task 2 Quality Assurance

Subtask 2.1 TWRI will develop a QAPP for water quality monitoring activities in Tasks 4 and 5 and a QAPP for watershed modeling activities in Task 6 consistent with the most recent versions of EPA Requirements for Quality Assurance project Plans (QA/R-5) and the TSSWCB Environmental Data Quality Management Plan.

The following actions have been completed during this reporting period:

- a. QAPP for Task 4 - GIS Inventory and Land Use/Land Cover Analysis
 - Approved on July 27, 2012.
- b. QAPP for Task 5 - Water Quality Monitoring
 - Approved on September 6, 2012.
- c. QAPP for Task 6 - Watershed modeling
 - No activity to report this quarter. Expected to be completed next quarter

66% Complete

Subtask 2.2 TWRI will implement the approved QAPPs. TWRI will submit revisions and necessary amendments to the QAPPs as needed.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Task 3 Public Participation and Stakeholder Coordination

Subtask 3.1 TTU-LRFS, with input from TWRI, SWLA, and Texas AgriLife Extension Service, will compile (Months 1-3) and maintain (Months 4-36) a database of watershed stakeholders and affected parties for use in engaging the public in the watershed planning process. The stakeholder group will be added to based upon previous efforts of SLWA. The database and stakeholder group will represent a diverse cross section of Upper Llano River landowners, citizens, local businesses, local and regional governmental entities and elected officials, state and federal agencies, and environmental and special interest groups.

The following actions have been completed during this reporting period:

- a. The TTU-LRFS continued work on the database of Upper Llano River watershed stakeholders providing the initial list to the TSSWCB in July 2012. The database currently consists of 421 landowners, citizens, local businesses, local and regional governmental entities and elected officials, state and federal agencies, and environmental and special interest groups.

25% Complete

Subtask 3.2 TTU-LRFS will facilitate public participation and stakeholder involvement in the watershed planning process, specifically project meetings and activities. TTU-LRFS will coordinate meetings, secure meeting locations, prepare and disseminate meeting notices and agendas. Meeting summaries will be prepared and posted to the project website. It is anticipated that at a minimum, quarterly public meetings will be sufficient; however, if more meetings are deemed necessary, they will be scheduled accordingly. Meeting frequency may be adjusted throughout the course of the project to accomplish project goals. TSSWCB will review and approve all meeting notices, agendas, and meeting summaries prior to public dissemination.

The following actions have been completed during this reporting period:

- a. The first public meeting (agenda attached), intended to inform the public of the WPP project, was held on August 14, 2012. The meeting was well attended with over 90 local stakeholders participating.
- b. The second public meeting (agenda attached), intended to gain consensus on the Steering Committee organization and structure, was held on October 9, 2012. Input was provided by those in attendance to organize an initial 15 member Steering Committee.
- c. The first Steering Committee meeting is tentatively scheduled for December 4, 2012. At this meeting, the goal will be to finalize the membership and organization of the Steering Committee and make plans for initiating the work of the committee in the coming year (i.e. March 2013 and thereafter - Quarterly Steering Committee Meetings).

25% Complete

Subtask 3.3 TTU-LRFS will attend and participate in other public meetings as appropriate in order to communicate project goals, activities and accomplishments to affected parties. Such meetings may include, but are not limited to, city councils, county commissioners' courts, Clean Rivers Program Basin Steering Committee and Coordinated Monitoring, local soil and water conservation districts (SWCDs), groundwater conservation districts and other appropriate meetings of critical watershed stakeholder groups.

The following actions have been completed during this reporting period:

- a. This quarter, TTU-LRFS met with/participated in the following meetings:
 - SLWA Board meetings on July 19, August 16, and September 20, 2012.
 - SLWA Conservation Easement Workshop on September 22, 2012.
 - Junction Rotary Club meetings on September 13 and 27, 2012.
 - Soil and Water Conservation District board meetings in Kimble, Sutton and Edwards counties.
- b. TTU-LRFS and/or TWRI will meet with local SWCDs approximately quarterly to provide them an overview of the project status, gather input, and encourage their participation in the project.

25% Complete

Subtask 3.4 TTU-LRFS will facilitate communication with stakeholders in order to engage the public and affected entities in the watershed planning process. TTU-LRFS will utilize all appropriate communication mechanisms including direct mail, e-mail, the project website, and mass media (print, radio, television). TTU-LRFS will utilize the existing SLWA Google Group to facilitate direct discussion between stakeholders. TTU-LRFS will develop, publish, and distribute 5 semi-annual newsletters (1 in year 1 and 2 in years 2 and 3) that highlight Upper Llano River watershed activities; the newsletter shall be distributed as most appropriate to individual landowners and entities in the watershed. TSSWCB must approve all project-related content in any educational materials and publications prior to distribution.

The following actions have been completed during this reporting period:

- a. TTU-LRFS direct mailed and emailed invitations to watershed stakeholders prior to the August and October stakeholder meetings. The invitation was also posted to the SLWA webpage. This proved effective as indicated by the outstanding participation at the two stakeholder meetings held to date.
- b. The SLWA Google Groups "South Llano River Project" group continues to be an effective tool for communicating with stakeholders. Those interested can sign-up for the group at the SLWA website (<http://southllano.org/>). This quarter, the Google group transmitted info on the Upper Llanos SWCD newsletter, a riparian workshop, and other materials.
- c. Media mentions this quarter included:
 - **Upper Llano River Watershed :: The Winkler Post :: Online News ...**
 - The Texas Tech University at Junction Llano River Field Station, Texas Water Resources Institute and Texas State Soil and Water Conservation Board are ...
 - http://www.winklerpost.com/postnews/2012/wp20120726/wp20120726_texas6.php
 - **Watershed Steward training in Junction :: The Winkler Post :: Online ...**
 - ... by becoming involved in local watershed protection and management activities ," said Dr. Kevin Wagner, Texas Water Resources Institute associate director.
 - http://www.winklerpost.com/postnews/2012/wp20120719/wp20120719_pet3.php

- **Meeting in Junction Aug. 14 on protecting Upper Llano River Watershed**
 - Texas Ag Daily | Agriculture News |
 - The Texas Water Resources Institute are set to host a meeting aimed at improving the Upper Llano River Watershed in Junction on Aug. 14. Participants at the ...
 - <http://www.texasfarmbureau.org/newsmanager/templates/DailyNews.aspx?articleid=12660&zoneid=1>
 - **Water Availability And Quality Hot Topic At Aug. 30 Meeting In ...**
 - ... by becoming involved in local watershed protection and management activities ," says Dr. Kevin Wagner, Texas Water Resources Institute associate director.
 - <http://farmprogress.com/story-water-availability-quality-hot-topic-aug-30-meeting-junction-0-61843>
 - **Aug. 30 training in Junction to focus on Llano River**
 - AgriLife Today
 - The training is open to anyone interested in these issues, coordinators said. The workshop is sponsored by the Texas AgriLife Extension Service and the Texas State Soil and Water Conservation Board in coordination with the South Llano Watershed Alliance
 - <http://today.agrilife.org/2012/07/18/aug-30-tws-junction/>
 - **Meeting in Junction Aug. 14 on protecting Upper Llano River Watershed**
 - AgriLife Today
 - Participants at the Upper Llano River Watershed Protection Plan meeting will discuss strategies to conserve and protect the water quality in the North and South Llano rivers, according to Dr. Kevin Wagner, associate director of the Texas Water Resources Institute. A no-cost public meeting to discuss the protection and preservation of the Upper Llano River Watershed will be held Aug. 14 in Junction at the Llano River Field Station. (Texas AgriLife Extension Service photo). The meeting is set for 6:30 p.m. at the Llano ...
 - <http://today.agrilife.org/2012/07/24/meeting-junction-aug-14/>
- d. Work this quarter was initiated on the first semi-annual newsletter. The newsletter will be completed and distributed next quarter.

25% Complete

Subtask 3.5 TTU-LRFS will coordinate with SCSC to host a Texas Watershed Steward Program workshop focused on the Upper Llano River through TSSWCB project 11-05, Continued Statewide Delivery of the Texas Watershed Steward Program.

The following actions have been completed during this reporting period:

- a. A Texas Watershed Steward Program was held on August 30, 2012. Thirty-five local stakeholders participated in this exceptional training program.

100% Complete

Task 4 GIS Inventory and Land Use/Land Cover Analysis

Subtask 4.1 TAMU-SSL will collaborate with project partners, local agencies and stakeholders to develop a comprehensive GIS inventory of the Upper Llano River watershed. This GIS inventory will include the most recent information available on land use, elevation, soils, stream networks, reservoirs, roads, public park lands, municipalities and satellite imagery or aerial photography. Locations of SWQM stations, USGS gages, public access points to the waterbodies, floodwater-retarding structures, wetlands, known OSSFs, TPDES permittees (including WWTFs, CAFOs and MS4s), and subdivisions will also be included. Sites permitted for land application of sewage sludge and septage should be included. Information from subtasks 5.4 and 5.5 should be included. The cumulative impact of TSSWCB-certified WQMPs on the management of agricultural and silvicultural lands should be documented. TAMU-SSL will provide watershed maps for stakeholder meetings as needed.

The following actions have been completed during this reporting period:

- a. With the exception of including data from the yet-to-be completed Subtasks 5.4 and 5.5, the compilation of GIS data for the watershed is essentially complete pending review and input from the project team.

90% Complete

Subtask 4.2 TAMU-SSL will perform a combination of satellite based image (2006-2010) classification schemes and where needed “heads-up digitizing” of the 2006-2010 NAIP aerial photos of the watershed using ESRI’s ArcGIS 9.x software. TAMU-SSL will identify individual LULC classes and delineate them in shapefile or ArcGIS grid format with a minimum mapping unit of 2 ac on screen. LULC classes will be comparable to NLCD. TAMU-SSL will verify LULC classification through field sampling and ground truthing information to an accuracy of 80% or greater. Ground control points used in the field sampling will be collected for at least ten locations per land use type using GPS units with an accuracy of 1-10 m.

The following actions have been completed during this reporting period:

- a. TAMU-SSL has classified the LULC in the watershed, ground truthed the data using ground control points, and provided it to the project team for review.

90% Complete

Subtask 4.3 TAMU-SSL will provide the GIS inventory and LULC update to the TTU-WRC for utilization in the watershed model. TAMU-SSL will also provide TTU-LRFS needed maps for the WPP.

The following actions have been completed during this reporting period:

- a. On October 10, SSL provided the GIS inventory and LULC update to the project team for review to ensure (1) that all necessary data was collected for use in the model and watershed assessment/plan development and (2) that the LULC was sensible.

50% Complete

Task 5 Water Quality Monitoring

Subtask 5.1 TTU-LRFS will conduct routine ambient monitoring at 14 mainstem sites and tributaries quarterly, collecting field parameters, conventional parameters, and flow. The QAPP, as detailed in Task

2, will precisely identify sites. The sampling period extends over 30 months. The number of samples planned for collection through this subtask is 140. Currently, routine ambient monitoring is conducted quarterly at 2 stations by LCRA and TCEQ (16701 and 17425) through the Clean Rivers Program. Sampling will be coordinated with these entities to prevent duplication of efforts and ensure comparability. Flow data will be collected by gage, electric, mechanical or Doppler, and flow severity will be noted. Field parameters measured will include pH, temperature, conductivity, and dissolved oxygen. Conventional parameters measured will include total suspended solids, turbidity, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen, chlorophyll a, pheophytin, total hardness, total phosphorus and E. coli (enumerated using USEPA Method 1603). The Edwards Aquifer Research & Data Center at Texas State University, a NELAC accredited laboratory, will conduct sample analysis, provide all containers and chain of custody.

The following actions have been completed during this reporting period:

- a. The first quarterly sampling began on September 20 (during the critical period). Field parameters, conventional parameters, and flow were measured. Field parameters were measured using the Hydrolab DS5X, and flow using an Acoustic Doppler current meter. Conventional parameters were delivered to Edwards Aquifer Research and Data Center and are awaiting analysis.
- b. After QA/QC checks, data will be prepared for upload into TCEQ SWQMIS database.

10% Complete

Subtask 5.2 TTU-LRFS will conduct biological monitoring (fish, macroinvertebrate, and habitat assessment) at 14 locations twice a year for 2 years to assess the cumulative impact of pollutant loading on stream health and biological communities of stream health. Biotic conditions and assessments for main stem and lower portions of the watersheds are just beginning as part of the Guadalupe Bass Restoration Project for the South Llano River with TPWD in conjunction with TTU-LRFS and Texas State University.

The following actions have been completed during this reporting period:

- a. The first semi-annual biological sampling began on September 20 (during the critical period) in conjunction with Subtask 5.1.
- b. After QA/QC checks, data will be prepared for upload into TCEQ SWQMIS database.

25% Complete

Subtask 5.3 TTU-LRFS will conduct spring sampling at 6 sites including 700 Springs, Big Paint and Tanner Springs. TTU-LRFS will work with Kimble County Groundwater Conservation District to identify other priority springs. Quarterly field, conventional, and flow parameters will be collected. Water quality parameters to be measured are defined in Subtask 5.1. The QAPP, as detailed in Task 2, will precisely identify sites. The sampling period extends over 30 months. The number of samples planned for collection through this subtask is 60. The Edwards Aquifer Research & Data Center, a NELAC Accredited Laboratory, will conduct sample analysis and provide all containers and chain of custody.

The following actions have been completed during this reporting period:

- a. The first quarterly spring sampling began on September 26 (during the critical period).
- b. After QA/QC checks, data will be prepared for upload into TCEQ SWQMIS database.

10% Complete

Subtask 5.4 TTU-LRFS will conduct surveys and map distribution and abundance of invasive emergent and aquatic plants from the headwaters (Llano Springs, 700 Springs, South Llano River and North Llano River) to Junction. TTU-LRFS and ESSM will work with the TPWD Aquatic Habitat Enhancement Program Director to determine BMPs for controlling or eradicating invasive species and develop an invasive species management plan for incorporation into the WPP.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 5.5 TTU-LRFS will conduct surveys and map the distribution, abundance, and severity of cut and eroding banks on the South and North Llano Rivers.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 5.6 TTU-LRFS will conduct a historical data review for the waterbody, to be included in the WPP, in order to assess and characterize trends and variability in water quality. Historical data collection activities will concentrate on 1) ambient water quality data (including groundwater); 2) stream flow and water level data; 3) precipitation records; and 4) biological data. U.S. Geological Survey, National Weather Service, TPWD, Texas Water Development Board, GCDs, LCRA, TCEQ, EPA and others will be queried for data related to the study area.

The following actions have been completed during this reporting period:

- a. TTU-LRFS continues work on the historical data review for the upper Llano River. Robin Cypher, TCEQ Surface Water Quality Monitoring Program, provided a comprehensive sampling history report for the Llano River. A draft report is being compiled.

25% Complete

Subtask 5.7 Through TSSWCB project 05-02 FY05 Statewide NPS Pollution Management Project, USGS will install and operate one new real-time streamflow gage at an appropriate location on the South Llano River as near the outlet of the assessment unit as is practical. Through this project, and contingent upon TSSWCB project 05-02, TTU-LRFS will work with USGS to provide operation and maintenance for this new real-time streamflow gage. Continuous sampling extends over 36 months. This gaging station will complement the existing gages maintained by the USGS. The USGS maintains real-time gages at 08150000 Llano River near Junction and 08148500 North Llano River near Junction and collects periodic data at gages 08149500 Seven Hundred Springs near Telegraph and 08149400 South Llano River near Telegraph. TTU-LRFS will work with USGS to ensure continued operation of these other USGS gages throughout the duration of the project.

The following actions have been completed during this reporting period:

- a. The new USGS stream gage was activated on May 16, 2012 on the South Llano River at Flatrock Crossing near the Texas Tech Campus. The link to this new gage is now available on the SLWA website under Quick Links.

25% Complete

Subtask 5.8 TTU-LRFS will transfer monitoring data from activities in Subtask 5.1-5.3 and 5.7 to TSSWCB for inclusion in the TCEQ SWQMIS at least quarterly. Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary, as described in the most recent version of TCEQ Surface Water Quality Monitoring Data Management Reference Guide. TWRI will submit Station Location Requests to TCEQ, as needed, to obtain TCEQ station numbers for new monitoring sites. TWRI will input monitoring regime, as detailed in the QAPP, into the TCEQ CMS. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. All monitoring data files, Data Summary, and Data Correction Request Forms will also be provided to LCRA. TTU-LRFS will post monitoring data from activities in Task 5 to the project website in a timely manner.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter. As indicated above, once QA/QC checks are completed, data will be prepared for upload into TCEQ SWQMIS database

0% Complete

Subtask 5.9 TTU-LRFS, with assistance by TWRI, will incorporate the watershed assessment findings in the WPP developed through Task 8.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Task 6 Modeling and Data Analysis

Subtask 6.1 TTU-WRC, with cooperation from project partners, will evaluate models, such as SWAT and EDYS, to simulate flow and water quality at appropriate subwatershed scales and identify BMPs and targeted locations to enhance the quality of runoff and recharge. TTU-WRC will recommend the use of a suitable candidate model. Once the most suitable model is selected by TTU-WRC, TWRI, and TSSWCB, TTU-WRC will assist TWRI in developing a modeling QAPP (Task 2). TTU-WRC will collect and evaluate relevant hydrologic data for the Upper Llano River watershed, including rainfall, stream flow, and groundwater conditions, as well as recent land use and vegetation distributions generated through Tasks 4-5.

The following actions have been completed during this reporting period:

- a. The EDYS (Ecological Dynamics Simulation) model has been selected for use in the project.

5% Complete

Subtask 6.2 TTU-LRFS will employ EPA's Causal Analysis/Diagnosis Decision Information System (CADDIS) to conduct a causal evaluation of the benthic macroinvertebrate data. CADDIS, an online application, provides a pragmatic guide for determining the causes of detrimental changes and undesirable biological conditions observed in aquatic systems. CADDIS supports defensible causal analyses of the mechanisms, symptoms, and stressor-response relationships for various stressors in order to draw appropriate conclusions.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 6.3 TTU-WRC, with cooperation from project partners, will summarize modeling findings to inform the stakeholders about the physical behavior of their watershed resulting from various implementation scenarios and work with project partners to incorporate this into the WPP.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Task 7 Public Outreach and Education

Subtask 7.1 ESSM, in conjunction with the TTU-LRFS, TTU-WRC, and SLWA will provide watershed training workshops for landowners on riparian protection, land stewardship, grazing management, invasive species, brush control, conservation, wildlife and habitat plans and water resource issues. Two workshops per year are planned to provide adequate coverage of the broad range of elements associated with water and watersheds and to allow a broad coverage of stakeholder groups. Pre- and post-participant surveys will be administered at selected events to evaluate (1) changes in producer knowledge and awareness and (2) expected adoption of BMPs.

The following actions have been completed during this reporting period:

- a. This quarter, the Texas Watershed Steward Workshop was held Thursday, August 30th at TTU-LRFS
- a. This quarter, the SLWA Conservation Easement Workshop was held at TTU-LRFS on September 22.
- b. The project team continues to work on arranging delivery of the Texas Well Owner Network Program and Lone Star Healthy Streams Program in the watershed.

25% Complete

Subtask 7.2 TTU-LRFS will develop and offer a K-12 TEKS based water and watershed curriculum unit. Students will understand the concepts of river basins and watersheds and be able to identify their river basin and local watershed. It is anticipated that about 90 ISDS and 7,500 K-12 students and teachers will receive watershed education and training over the 3 years of the project. TTU-LRFS will expand existing curriculum developed by the LRFS Outdoor School, an award winning, Texas High School Project recognized Exemplar Program (<http://www.depts.ttu.edu/hillcountry/OLC/index.php>). This program is a STEM No Child Left Behind standards-based transdisciplinary, inquiry-based, innovative curriculum that incorporates multiple best learning practices to improve instruction for at-risk students and provide training for teachers. The Outdoor School incorporates GLOBE (Global Learning and Observations to Benefit the Environment, <http://globe.gov/>) training and protocols into the STEM curricular units. GLOBE is a federal K-12 environmental education program instituted by NASA, NOAA, and NSF. For this new curriculum unit we will use GLOBE Watershed Dynamics to enable students to investigate their own watershed in order to understand the flow of water through the watershed, how human activities within

the watershed both depend on and impact its hydrology, and how land use changes can affect the plant and animal communities in the watershed. TTU-LRFS Outdoor School will also work with the TWDB Conservation Education Specialist to implement Major Rivers: A Texas Water Education Program. The curricular resources to develop this unit are free from GLOBE and TWDB.

The following actions have been completed during this reporting period:

- a. TTU-LRFS is currently actively rewriting the established curriculums.
- b. TTU-LRFS attended a planning meeting for the Texas Natural Resources/Environmental Literacy Plan on August 31, 2012.

10% Complete

Subtask 7.3 TTU-LRFS will organize a Texas Water Symposium in partnership with Texas Public Radio, Schreiner University, Hill Country Alliance, SLWA, and TWRI on EPA's Healthy Watersheds Initiative with this project as a case study for Texas. The Symposium will be held at TTU- LRFS in front of a live audience and taped for broadcast during Texas Public Radio's Newsmaker Hour. TWS will include panelists from key stakeholder groups and cover the importance, process and benefits of WPPs.

The following actions have been completed during this reporting period:

- a. TTU-LRFS hosted a Texas Water Symposium on Healthy Watersheds and Upper Llano WPP efforts on March 22, 2011. The Symposium was held at TTU- LRFS in front of a live audience and taped for broadcast during Texas Public Radio's Newsmaker Hour. The TWS included panelists from TPWD, TSSWCB, Hill Country Alliance, TTU-LRFS, and TWRI.

100% Complete

Task 8 Watershed Protection Plan Development

Subtask 8.1 TTU-LRFS, in collaboration with project partners, will develop a WPP for the Upper Llano River watershed that is consistent with and satisfies the expectations of the nine elements fundamental to watershed-based plans as described in EPA's 2004 Nonpoint Source Program and Grants Guidelines for States and Territories [68 Fed. Reg. 60653-60674 (October 23, 2003)] and incorporates the elements of EPA's Healthy Watersheds Framework as described in the technical guidance document Identifying and Protecting Healthy Watersheds (EPA 2011). The WPP shall be founded on decisions made by stakeholders through the watershed planning process (Task 3) and incorporate findings from project Tasks 4-7. TTU-LRFS will facilitate public review and stakeholder approval of the WPP.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 8.2 TTU-LRFS will develop an "executive summary" style document, based on the WPP, which will serve as a public outreach tool to garner support for the implementation of the WPP and achieve long term sustainability.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 8.3 After EPA has completed a satisfactory nine element consistency review of the WPP, TWRI will publish, print, and distribute the WPP and "executive summary" document to stakeholders.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

III. Related Issues/Current Problems and Favorable or Unusual Developments

- Project invoicing is behind schedule as a result of business office personnel changes. Invoicing will be brought up to date in the next quarter.

IV. Projected Work for Next Quarter

- First quarterly sampling data will be uploaded into TCEQ SWQMIS database
- Second quarterly routine sampling will be completed.
- Modeling QAPP will be developed and submitted.
- October 26-27: Presentation "Texas Hill Country Stewardship" to the Texas Riparian Association
- December 4 (tentative): Host Initial Steering Committee Meeting
- Circulation of the first newsletter

Upper Llano WPP Coordination Meeting

August 14, 2012

Attendees:

- K. Wagner, TWRI
- T. Arsuffi, TTU-LRFS
- Wendt, TSSWCB
- J. Lloyd, TSSWCB
- Tyson Broad, SLWA

Action/Discussion Items:

The Fourth Quarterly Report is due October 15

Project is behind schedule on expenditures. Make sure to keep TSSWCB updated on financials.

The next face-to-face project meeting will be held in conjunction with the next stakeholder meeting scheduled for October. A follow-up conference call on the First Stakeholder Meeting will be held on August 22 at 3 pm. Additional coordination meetings will be held to facilitate planning of the Second Stakeholder Meeting.

SLWA will modify the southllano.org website by the end of September to integrate information on the watershed protection plan and associated project documents (i.e. workplan, QAPPs, QPRs, presentations, meeting agendas and summaries, fact sheets, etc.).

The Texas Watershed Planning Short Course will be offered September 24-28. Tyson Broad is considering attending. Emily Seldomridge will participate IF critical period sampling is completed allowing her to.

The QAPP for the GIS Inventory and Land Use/Land Cover Analysis has been approved

The QAPP for the Water Quality Monitoring has been submitted to EPA. Mapping of invasives and cut bank will need to be added before those tasks are completed.

Work will be initiated now on integrating the planned modeling activities into the GIS Inventory and Land Use/Land Cover Analysis QAPP.

The database of watershed stakeholders currently stands at approximately 350 individuals. The database will be added to throughout the project.

The next Stakeholder Meeting is tentatively scheduled for October 2012. Planning for this meeting will be initiated during the August 22 conference call. Additionally, planning for a watershed tour was discussed following formation of the Steering Committee.

Dr. Arsuffi continues to participate in meeting with groundwater districts and soil and water conservation districts to provide stakeholders information regarding the program. Dr. Wagner will make efforts to better engage Extension agents and specialists into the effort.

It is time to develop the first semi-annual project newsletter so that it can be distributed in October. Topics discussed for inclusion in the first newsletter include:

- Elephant Ear
- Biological monitoring
- Texas watershed Steward
- Info on the upcoming Stakeholder meeting
- Connecting the dots between the Conservation Plan and WPP
- Fire Recovery

Texas Watershed Steward program will be held on August 30. Currently only 10 are registered. More participants are needed.

Now that the Land Use Land Cover QAPP has been approved, analysis of data should proceed rapidly and hopefully a map will be available at the next meeting. Tyson will provide information on TPWD's vegetative mapping, spring locations, locations of invasives, etc.

Water quality monitoring initiation is awaiting approval of the QAPP. Two issues remain, 1) the need for landowner approval to sample 3 of the targeted springs and 2) the need to add information on the process to ensure quality of the mapping data for invasives and cut banks.

Drs. Arsuffi and Lyons have developed a plan for upcoming workshops. The Invasives Workshop on June 9 was lightly attended but the program was good. An absentee workshop was identified as a need for the project. Finally, on September 22, a Conservation Easement Workshop will be held at the LRFS hosted by several land trusts.

On the Texas Water Symposium held on March 22, 2012, Dr. Arsuffi is going to check on the results from this program related to audience of the program during the broadcast during the Texas Public Radio's Newsmaker Hour and any follow-up hits on the web.

Finally, it was discussed that it's never too early to begin writing on the WPP.

Upper Llano River Watershed Protection Plan

August 14, 2012
Llano River Field Station
Texas Tech University
Junction, TX

Agenda

- 6:00 Refreshments and Sign-in
- 6:30 Welcome
 - Andrew Murr, Kimble County Judge
- 6:35 Meeting Overview and Introductions
 - Kevin Wagner, Texas Water Resources Institute
- 6:45 Watershed Planning Process
 - Aaron Wendt, Texas State Soil and Water Conservation Board
- 7:10 Water Quality in the North and South Llano Rivers
 - Tyson Broad, South Llano Watershed Alliance
- 7:30 Upper Llano River Watershed Studies and Watershed Protection Plan
 - Tom Arsuffi, Texas Tech University Llano River Field Station
 - Kevin Wagner, Texas Water Resources Institute
- 7:55 Watershed Partnership Structure and Getting Involved
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 8:05 Open Discussion
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 8:25 Door Prizes, Wrap-up and Next Steps
 - Tom Arsuffi, Texas Tech University Llano River Field Station
 - Kevin Wagner, Texas Water Resources Institute
- 8:30 Adjourn

Upper Llano River Watershed Protection Plan

October 9, 2012
Llano River Field Station
Texas Tech University
Junction, TX

Agenda

- 6:00 Refreshments and Sign-in
- 6:30 Welcome and Introductions
 - Honorable Souli Shanklin, Edwards County Judge
- 6:35 Review Water Quality Conditions in North and South Llano Rivers & Ongoing Efforts
 - Emily Seldomridge, Texas Tech University Llano River Field Station
- 6:50 **Presentation:** Ecosystem Services Defined
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 7:10 Examine Possible Organizational Frameworks
 - Kevin Wagner, Texas Water Resources Institute
- 7:25 Open Discussion and Stakeholder Decision on Organizational Framework
 - Kevin Wagner, Texas Water Resources Institute
- 7:45 Examine Possible Stakeholder Representation
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 8:00 Open Discussion and Stakeholder Decision on Stakeholder Representation
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 8:25 Door Prizes, Wrap-up and Next Steps
 - Tom Arsuffi, Texas Tech University Llano River Field Station
- 8:30 Adjourn