The Texas Water Resource Institute published a report in April 2013 regarding bacterial source tracking to support development and implementation of watershed protection plans for the Leon and Lampasas watersheds. This project was designed to produce useful information that will improve local knowledge of pollutant sources contributing bacteria to the watershed. Typically, water quality data is collected in a watershed on a quarterly basis at a limited number of sampling locations. The intensive water quality monitoring implemented through this project collected monthly samples at 15 monitoring stations over the course of a year. This provided a much clearer look at seasonal and spatial trends in water quality. Additionally, this expansive set of water quality samples allowed for estimates of bacteria source contributions to be made at each sampling station. Collectively, these data and associated analysis provided an enhanced look at water quality and pollutant source contributions that will aid watershed stakeholders in their implementation efforts.

Water quality data collected revealed that E. coli levels were periodically elevated across the watershed and were likely a result of nonpoint sources of pollution entering the waterways during or shortly after runoff producing rain events.

Collectively, the geometric mean of data from all sites was approximately half of the state’s current primary contact recreation standard of 126 cfu/100 mL. Of the 15 sampling stations, only 2 exhibited E. coli concentration geometric means above this level. These data will be submitted to TCEQ for consideration in the next biannual water quality assessment.

When looking at all sampling stations combined, wildlife (avian and non-avian) combined to garner 60% of the E. coli identified while cattle made up 14%, human sources accounted for 8%, pets and other non-avian livestock both accounted for 7%, and avian livestock was identified 2% of the time, however, these results should be considered cautiously as the number of samples available for analysis at some stations due to the drought conditions reduces the utility of these findings.

It seems clear that in order to successfully improve water quality in the Leon River, wildlife management must be a part of the implementation plan. Reduction of feral hog and deer populations are critical practices the Leon Watershed Coordinator (Mike Marshall) is actively promoting.

Above: sources of bacteria in the Leon River are primarily wildlife
A Water Quality Management Plan (WQMP) is a site-specific plan developed through and approved by local Soil and Water Conservation Districts (SWCDs) which includes appropriate land treatment practices, production practices, management measures, and technologies that prevent and abate agricultural and silvicultural nonpoint source pollution. Producers can receive technical assistance, and in some cases financial assistance for implementing best management practices on their land.

A WQMP covers the entire operating unit, and includes required practices applicable to the planned land use. Conservation cropping sequence and residue management should be considered for cropland. Proper grazing use is a vital consideration for a good WQMP on rangeland. Various grazing systems will be examined and a sustainable system will be implemented. A WQMP on pastureland or hayland will have water facility considerations.

WQMPs also include more technical requirements. Nutrient management must be outlined if nutrients are applied. Pesticide management must also be considered. An owner/operator will have to know how to properly apply these components to their land. If an animal feeding operation is involved (such as a dairy or poultry operation) an animal waste management system will be a component of the WQMP. Waste utilization will be considered when agricultural wastes are applied. These WQMPs also have components for irrigation waters, erosion control, and are flexible enough to cater to a wide range of operating systems.

The first step in obtaining a WQMP is to visit your local SWCD. Typically, the SWCD office is co-located with the NRCS at the local USDA Service Center. NRCS or SWCD staff at the local office can take your request for a WQMP, obtain necessary information from you, and start the plan development process. There is no charge for development of a WQMP. However, there may be costs for implementing certain practices required in your WQMP, for which there may be financial assistance available.

A plan will consist of best management practices that will be implemented on the site. Best management practices that achieve bacteria reductions on pastureland and rangeland that are eligible for financial incentives include: fencing, watering facilities, pipelines, wells, pasture and hayland planting, rangeland planting, riparian herbaceous buffers, riparian forest buffers, nutrient management, critical area planting, pumping plants, grassed waterways, field borders, and filter strips.

The Leon River Watershed is an approved priority area for Fiscal Year 2014 financial incentive allocation, meaning that landowners in the Leon River Watershed are eligible to receive cost share incentive money to implement WQMPs on their property. Landowners are eligible to receive a maximum financial incentive amount of $15,000 from Texas State Soil and Water Conservation Board (TSSWCB) funds, where the maximum financial incentive rate cannot exceed 60% of the cost of implementation.

Mike Marshall, Leon River Watershed Coordinator, recently submitted a 319 Clean Water Act grant proposal to TSSWCB that would support a Leon Watershed District Water Technician. If funded, the technician would be placed in the Coryell-Hamilton SWCD office and work under the direction of the SWCD, with assistance from the TSSWCB, NRCS, and the Watershed Coordinator as needed. The main responsibility of the district technician would be to develop WQMPs with landowners to implement BMPs in the watershed. The District Technician would work with TSSWCB, NRCS and the Watershed Coordinator to educate agricultural producers about water quality issues and how WQMPs and BMPs address agriculture runoff. The Technician would work with commodity organizations, such as Texas and Southwestern Cattle Raisers Association (TSCRA), Independent Cattlemen’s Association of Texas (ICA), Texas Farm Bureau (TFB), and others to educate their members about how BMPs can protect and enhance the value of their operation and achieve water quality goals for the watershed at the same time.
Improving water quality through proper wildlife management

Degradation of native rangeland and riparian areas is a major threat to water quality, in-stream habitat, terrestrial wildlife, aquatic species, and overall stream health. Changes within the uplands will impact the physical, chemical, and biological processes occurring within a stream corridor, thus, in order to adequately manage riparian areas, the upland areas must be taken into account. An important component of upland areas affecting water quality is wildlife, so proper wildlife management is critical to improving the quality of our streams.

Texas has experienced severe drought events, massive wildfires, water quantity and quality issues, and a substantial conversion of rural lands to other uses, all of which have affected how landowners manage farms and ranches for crops, timber, livestock, and wildlife. Many landowners are now discovering the profitability of managing for wildlife in addition to their cattle operation. Mixing livestock and game species has been the focal point for many people, but managing for endangered species, such as endangered songbirds, is another viable option for landowners looking to diversify their income through good land stewardship.

With over 100 species currently being considered for listing in Texas under the Endangered Species Act (ESA), it is imperative landowners become increasingly aware of issues related to rare species. Many people are unaware that managing for game species is often good management for endangered or rare species. The black-capped vireo is an endangered bird that occurs throughout much of central-Texas, and represents an ideal species, whose management results in good habitat for game species such as white-tailed deer and northern bobwhite. Financial incentives associated with endangered species management promote healthy rangelands, thus healthy streams.

A rancher interested in managing for livestock, white-tailed deer, and black-capped vireos, diversifies his/her income by receiving additional money from 3 sources: livestock, hunting, and rare species management, while improving water quality through proper upland management. Landowners can take advantage of state and federal incentive programs to diversify income through good land stewardship for livestock and wildlife. These programs include the Landowner Incentive Program (LIP; Texas Parks and Wildlife Department), and federal resources, like the Partners Program (US Fish and Wildlife Service), and Environmental Quality Incentive Program (EQIP), Wildlife Habitat Incentive Program (WHIP), and Wetland Enhancement Program (WEP) offered by the Natural Resources Conservation Service.

Most of the principles inherent in riparian best management practices are mirrored in best management practices aimed at wildlife habitat development and restoration. An educational program that provides specific instruction on issues such as calculating a proper stocking rate for livestock, proper application of herbicide, identifying wildlife habitat, and discovering incentive programs through agencies such as Texas Parks and Wildlife and Natural Resource Conservation Service would enhance local efforts to improve water quality.

With this in mind, Mike Marshall, Leon River Watershed Coordinator submitted a 319 Clean Water grant proposal to TSSWCB to hold Riparian Grazing and Wildlife Habitat education programs, including one in the Leon River Watershed. The goal of the workshop is for participants to better understand how proper management of upland areas leads to healthier riparian systems. Also, proper management of rangelands for wildlife can not only improve stream quality, but diversify landowner income through hunting leases and ecotourism. Participants would learn the value of a healthy riparian area not only for human use, but for higher quality wildlife habitat. Stay tuned for more info on this potential program.
A free workshop was held at The Comanche Community Center on November 19th in which producers had the opportunity to earn 3 DOPA credits. Sponsors included Ag Texas Farm Credit Services, Central Texas Farm Credit, Comanche Electric Coop, Comanche National Bank, DeLeon Irrigation Supply, Farley Farm, Supply, Heartland Insurance, and SureGrow Ag Products. Topics covered included the Leon River Watershed Protection Plan, Best Management Practices for Dairy Producers, Middle Trinity Groundwater Issues and Updates and Bacterial Source Tracking in the Leon River. Indoor presentations included speakers from Texas A&M AgriLife Extension Service, Institute of Renewable Natural Resources, Texas Water Resources Institute, and Middle Trinity Groundwater District. There were over 60 attendees at this event represented by both landowners and agency folks.

A free feral hog workshop was held in Gatesville on November 22nd. Lunch was provided by Coryell and Hamilton Counties in support of the feral hog CHAMP grant which was awarded to these counties several months ago. Coryell County Commissioner Jack Wall and Hamilton County Commissioner Johnny Wagner discussed their counties feral hog abatement programs while Coryell County Commissioner Don Jones fried up some delicious catfish for lunch. Topics covered included feral hog history, biology, hunting regulations, disease concerns, and impact to water quality in the Leon River. Presentations were from Texas A&M, Wildlife Services, Texas Animal Health Commission, County Game Wardens, and County Commissioners. There were over 75 attendees at this event represented by both landowners and agency folks. Feral hogs have a massive impact on our water quality, so it is good to see so many citizens are interested in becoming informed of the issues. Both Coryell and Hamilton Counties have active bounty programs, so call your county extension agents for more info!

“Both Coryell and Hamilton Counties have hog bounty programs”

Coryell County Extension— 254-865-2414

Hamilton County Extension— 254-386-3919

Comanche County Extension— 325-356-2539

Pictures from the Workshops

Dairy Workshop in Comanche

Feral Hog Workshop in Gatesville
The importance of proper disposal of dead animals

Because of the hog bounty programs in place in the Leon River Watershed and the current focus on education and outreach regarding feral hog abatement, many feral hogs are being killed. In fact, over 1,000 hogs were killed in Coryell County during a 2 month period...and that was just the hogs that were counted for the bounty! The good news is there less hogs. The bad news is there’s a whole lot of carcasses that if not disposed of properly can be a significant contributor of bacteria in the Leon River.

Hogs aren’t the only issue when it comes to dead carcasses polluting the Leon River. A reconnaissance survey verified that carcasses of small livestock, deer, dogs, and a wide variety of wildlife are commonly found in creeks. Often they are thrown into creeks from bridges. At present only the City of Comanche offers a location where citizens can take small animal and pet carcasses for disposal at a dumpster. So what do we do with all of the dead animals?

Key elements of a county dead animal disposal strategy would generally include equipment for burial, land acquisition for dumpsters in a convenient location, access to a regional disposal facility (landfill), operational costs, and public education and outreach. Ultimately, the landowner is responsible for making sure carcasses are properly disposed of. In fact, Texas Administrative Code (30 TAC Section 335.4) states there can be no discharge into or adjacent to waters in the state. Meaning throwing a dead animal into a creek or near a creek is against the law.

What are the options a landowner has for proper disposal of dead farm or ranch animals?

There are several options including on-site burial, composting, or sending the carcass to a municipal solid waste landfill, renderer, or commercial waste incinerator. TCEQ rules allow animals to be burned when burning is the most effective means to control the spread of a communicable disease. The animal must be burned until the carcass is thoroughly consumed. When burying the animal, do so at least 300 feet from drinking water wells and surface water (i.e. creeks, ponds, lakes) and at least 200 feet from adjacent property lines.

An approach when dealing with dead wildlife, such as feral hogs, is to find a place upland to drag the carcass where vultures will consume the carcass. Remember that most vultures detect carcasses by sight, so if left under tree cover, they may not see it. Dragging a carcass at least 300 feet away from surface water into an open area can be a quick way to deal with some issues. The main point is to never throw dead animals into creek beds or near surface water.

Upcoming Workshops in the Leon River Watershed

On January 18th, Hamilton County will be hosting a Feral Hog Workshop. Mike Marshall will update folks on implementation of the Watershed Protection Plan. Dan Gaskins will talk about the history and biology of feral hogs, and a game warden will be present to talk laws and regulations.

On February 7th, a feral hog workshop will be held in Comanche. Topics will include feral hog biology, trapping strategies, safe handling procedures, and much more. Mike Marshall will give another update folks on implementation of the Watershed Protection Plan.

On February 26th, a homeowner’s water day will be held in Comanche. Topics will include rain water harvesting, urban BMPs, septic system maintenance, and updates from the watershed coordinator and Middle Trinity Ground Water Conservation District.

Other workshops are in the works, so make sure and visit our website at leonriver.tamu.edu or the Leon River Watershed Facebook page to keep up with the latest. We look forward to seeing everyone at these events!