Leon River Watershed Project

The Leon River Watershed Protection Plan has been accepted by EPA!

The Leon River below Proctor Lake was initially placed on the State of Texas Clean Water Act (CWA) §303(d) List of impaired waters in 1996 for having bacteria levels that “sometimes exceed water quality standards”. Placement of the Leon River on the §303(d) List caused the TCEQ to initiate the development of a total maximum daily load (TMDL). In the simplest terms, a TMDL is a daily pollution budget that establishes the amount of a particular pollutant that a waterbody can receive and still meet state water quality standards.

TCEQ initiated the TMDL process for the Leon River upstream of Highway 281 in January 2002. Based on additional data collection efforts, data analysis and modeling, and a series of stakeholder meetings, a draft TMDL report prepared by TCEQ (April 2008) proposed that a 21 percent reduction in bacteria loadings in the upper watershed of the Leon River could restore water quality to meet Texas surface water quality standards (SWQS).

In 2006, as a result of the TMDL Project local stakeholders expressed an interest in taking an active role in developing management strategies to reduce bacteria loadings to the Leon River by developing a Watershed Protection Plan (WPP). The Brazos River Authority (BRA) was asked to facilitate this planning effort. The Leon River WPP identifies implementation strategies supported by local stakeholders that will reduce bacteria levels in creeks and rivers in the Leon River watershed over time with minimal consequence to the livelihoods of the citizens in the watershed.

EPA Region 6 completed their review of the latest draft of the Leon River WPP. The original draft of this WPP was first submitted to EPA on October 25, 2011. EPA provided comments to Texas State Soil and Water Conservation Board (TSSWCB) on November 27, 2012. The current draft, which was submitted to EPA on February 10, 2015, addresses all EPA comments, and EPA has accepted it as completely addressing all required nine elements in the EPA national guidance for development of Watershed Based Plans (WBPs).

Now that the Leon River Watershed has an accepted WPP, EPA has stated that they are looking forward to supporting TSSWCB with Clean Water Act 319 project funding in addressing water quality impairments. Projects in the Leon River Watershed funded by CWA 319 money include the development of the Leon River WPP, support of a Watershed Coordinator and Soil and Water Conservation District Technician, and septic system cost share programs in Hamilton and Coryell Counties. With additional 319 funding, we will look to expand on these existing programs and create other projects that support best management practices aimed at reducing bacteria levels in the Leon River.

Some best management practices that will have the greatest impact on reducing bacteria based on the accepted WPP are water quality management practices such as prescribed grazing, cross fencing, vegetative filter strips and alternative water sources, feral hog management, and stormwater strategies (e.g. setbacks and buffers adjacent to urban creeks).
Fertilizers are expensive, so testing your soil not only helps to improve local water quality but also can save you money.

“Essentially, all life depends upon the soil...There can be no life without soil and no soil without life; they have evolved together.”

-Charles Kellogg

Soil is responsible for many essential ecosystem functions, such as water absorption, filtration and retention; recycling nutrients and organic wastes; storing and releasing greenhouse gases; and providing a home for plant and important microbial communities (e.g., bacteria, fungi, protozoa, nematodes, and arthropods). Healthy soils lead to healthy plants, and healthy plants play a key role in maintaining surface water quality by filtering bacteria and nutrients and capturing sediment. Maintaining healthy soil can be especially beneficial for agriculture producers. Soil health must to be built from the ground up with time, effort, and special consideration to its physical characteristics such as structure and porosity. Although understanding these characteristics and how they affect the ability of plants to grow can be overwhelming, landowners can easily apply the five principles of improving soil health to improve soil conditions, and subsequently plant production, on their land.

THE FIVE PRINCIPLES:

Armor the Soil--A physical covering on the soil can protect against erosion, evaporation and transpiration, and compaction. The armor itself can consist of mulch material or living vegetation. By adding armor to your soil, you can provide relief from temperature extremes. In cases of excessive heat, for example, armor helps reduce soil temperature, which subsequently decreases the amount of water lost and microbes depleted. Armor also reduces compaction from external forces, allowing soil to be exposed to more oxygen. More oxygen will promote the growth of essential microbial communities, allowing for the continuation of nutrient cycling.

Minimize Disturbance--It is important to minimize the 3 following types of disturbances:

PHYSICAL--Compaction from heavy machinery and tillage can greatly reduce soil porosity, therefore limiting the amount of oxygen and water able to enter into, and move through the soil.

CHEMICAL--Improper use of fertilizers and pesticides contribute excess nutrients and chemicals to soil and local water bodies. What is not absorbed by plants is saturated into the soil (affecting microbial communities) or carried away by water runoff (reducing water quality).

BIOLOGICAL--Overgrazing can quickly deplete an area of ground cover. Exposed soil is highly susceptible to wind and water erosion, as well as increased water loss through evaporation.

Plant Diversity and Maintaining a Living Root Round--By increasing plant diversity above ground, more diversity can develop underground in microbial communities. Different plant types release unique root exudates (i.e., substances) into the soil, attracting specific microbes. A diverse microbial community increases nutrients available in the soil and aid in water retention, thus benefiting above ground production of plants. Since microbes prefer living root as a food source, it is important to limit dormant seasons through the implementation of multispecies, both warm and cool season grasses and broadleaves/legumes between, or with, cash crops. A mixture of plant types will also improve the physical and chemical properties of soils. Some root systems have great spreading and grabbing ability which reduces erosion, while other systems can increase soil porosity or fix nitrogen at greater rates.

Livestock Integration--Proper integration of livestock, such as sheep, goats, horses, pigs, or cattle, onto your land can dramatically improve the health of the soil through harvesting, processing and distributing nutrients that come from vegetation. The proper integration of livestock serves to manage plant communities, provide fertilization across the landscape, and provide hoof-action to stomp in organic matter.

This article only provides a brief introduction into the five principles of soil health. For more information on soil health contact Texas A&M AgriLife Extension Service, Texas Grazing Land Coalition, Natural Resources Conservation Service, or the Samuel Roberts Noble Foundation. The Leon River Website also has several PowerPoint presentations and articles highlighting soil health, and can be found at:

http://leonriver.tamu.edu/meetings/
D.I.Y. Game Feeder Corral Trap for Wild Pigs

Supplemental game feeders or “deer feeders” are common in Texas and many landowners provide supplemental feed year round in hopes of increasing the number and quality of desired species such as white-tailed deer. Many small tract landowners have game feeders on their property and enjoy attracting and viewing wildlife year round even if they do not hunt. One has to wonder if all of these game feeders aren’t significantly contributing to expanding populations of wild pigs. Research shows that wild pig reproduction is significantly influenced by nutrition, and sows with access to adequate year round nutrition can have as much as 20% more offspring. Game feeders can contribute to wild pig abatement in ways that can actually save time, feed, and money. While this concept can be applied with commercial head gates and also the more expensive human activated trapping systems, this article will discuss how to construct an affordable, do-it-yourself game feeder corral trap.

Work smarter, not harder

Many are discouraged from trapping wild pigs because of the amount of labor involved in the process. The idea of having to bait and check traps every day is enough for some to be turned off to the whole idea. When implemented correctly, a game feeder corral trap will bait the trap for you every day until an entire group or “sounder” of wild pigs are routinely entering and feeding in the trap. A game camera can be used to verify this activity and can be checked daily, weekly, or monthly – whatever is convenient for you. When an entire sounder is routinely feeding in the trap, you should ideally only have to set and check your trap once to capture wild pigs. There are other factors, of course, such as non-target species, filling your feeder, changing camera batteries, and others. However, these activities are still much easier then manually setting, baiting, checking, and disturbing wild pig traps every single day.

Stack the odds in your favor

Before building a game feeder corral trap, there are a number of things that can be done that can help to increase trapping success. If you have existing game feeders on your property, they are potentially already doing the necessary pre-baiting for you and should be considered as potential trapping locations. The advantage here is that the pigs are most likely already conditioned to visiting these pre-existing feeder locations. If you have multiple feeders, you will need to identify which feeder is attracting the highest number of wild pigs. Placing game cameras at feeder locations, understanding how to identify wild pig sign, and identifying preferred habitat such as thick cover near a permanent water source will help in selecting the ideal feeder location to construct a trap.

Once you have selected a feeder, consider selectively excluding or deactivating other nearby wildlife feeders. Research has shown that 28-inch and 34-inch paneling around game feeders will exclude wild pigs completely while still allowing species such as white-tailed deer to routinely enter, feed, and exit (Timmons et al. 2011). By excluding or deactivating other feeding locations, you can save money on feed costs and also direct wild pigs to your trap site. This is especiallytrue during times of year such as mid to late summer and mid to late winter when natural forage availability is low.

Finally, minimize presence and disturbance at trap sites. Once the game feeder corral trap is constructed, you do not need to check it every day. The feeder will bait and the camera will allow you to observe the number and type of animals frequenting the trap location. The goal of corral trapping is to capture an entire sounder of wild pigs, and your trap can remain wired open and unset until a group is routinely feeding inside the trap.

Constructing the trap

Keep in mind that it is rare to “over-engineer” a wild pig trap. T-post spacing should be every 4 feet, panel mesh should be no larger than 4 inches, and all wiring should be doubled to ensure adequate strength. Wild pigs will test your trap design as they try to escape. When approaching trapped animals, it is not the time to find out that the trap should have been constructed more securely.

Other Considerations

Game feeders are designed to attract deer and other wildlife for feeding, viewing, and hunting purposes. Many game feeders have an adjustable motor which controls the amount and dispersal of bait. It is often necessary to broadcast feed at a low rate per minute (rpm) in order to ensure that the bait falls within the trap and behind the trigger. If your feeder is not adjustable, consider funneling the broadcast downwards to ensure that bait is dispersed as desired.

It is important to note that the head gate can easily be removed or wired open prior to and during hunting season, or the entire trap can even be removed if necessary. However, keep in mind that the longer the trap is present the more likely that wildlife including deer, wild turkeys, and wild pigs will become used to it. When coupled with other strategies such as selectively excluding other game feeders, you may find that you are attracting and feeding more of the animals that you want on your property.

While the goal of corral trapping is to capture the entire sounder, larger boars will sometimes dominate a bait site. If this becomes the case, it may become necessary to trap or shoot this animal before trapping the remainder of the sounder. Also, if non-target species such as raccoons frequent the trap site in excessive numbers, they may also need to be trapped or removed to assure that bait is available for attracting wild pigs.

See the next page for a list of materials that will aid in your corral trapping efforts and educational resources that will increase the success of your abatement efforts.
Materials and Resources for Trapping Feral Hogs
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The following are suggested materials to aid in your corral trapping efforts:

**Guillotine Head-gate Materials**
- 5’ (2”X4”)’s
- 4’ (2”X4”)’s
- ¾” plywood (3’X4’)

**Trap Materials**
- 4 - 16’ (L) X 5’ (H) Utility Panels (4”X4” Mesh)
- 12-16 T-Posts
- 1 Roll of Bailing Wire

**Tripwire Materials**
- 1” (2”X2”)’s
- 1 Hinge
- 1 Eyelet
- 1 Spool of 80-100 lb. braided fishing line
- 2-3 Small Carabineers

There are many modifications that can be made to these suggestions including using a commercial head gate, human activated trapping system, wider gate, wexford style push through entrance, wire or rope trip wire, and others, but the addition of a game feeder should reduce labor and make the process easier. You may want to experiment to find a system that works best for your specific situation.

For free educational programming or technical assistance with feral hogs please contact: Josh Helcel, Central and North Central Texas, 254-2480532, josh.helcel@ag.tamu.edu

Also, see other feral hog resources at http://agrilifebookstore.org.

- L-5523 Recognizing Feral Hog Sign
- L-5524 Corral Traps for Capturing Feral Hogs
- L-5525 Box Traps for Capturing Feral Hogs
- L-5526 Placing and Baiting Feral Hog Traps
- L-5527 Door Modifications for Feral Hog Traps
- L-5528 Snaring Feral Hog
- L-5529 Making a Feral Hog Snare
- SP-419 Feral Hogs Impact Ground-nesting Birds
- SP-420 Feral Hog Laws and Regulations
- SP-421 Feral Hogs and Disease Concerns
- SP-422 Feral Hogs and Water Quality in Plum Creek
- SP-423 Feral Hog Transportation Regulations
- L-5533 Using Fences to Exclude Feral Hogs from Wildlife Feeding Stations

Carabineers allow for hinged trip wire systems to be easily removed when trap is not set.

Head gate and T-posts should be secured at multiple points with doubled bailing wire.

Dominant boars may need to be trapped or removed individually if they take over a bait site.
A lot of water fell on Texas in May. A lot of water. Anyone with an eye on the news or the Weather Channel has seen the footage of underwater highways, submerged vehicles, and devastating flood damage all across the state. For almost the entire month of May, Texas was swallowed up in a deluge of rain the likes of which we haven’t seen in years, and the recovery effort will certainly be long and arduous.

So how much water are we talking about, exactly? All the images and videos provide little glimpses into areas where floodwaters were several feet high—pictures and overhead drone video from Houston make the city look almost unrecognizable. The same goes for much of Central Texas, where people, clinging to fences after getting stuck in flash floods, had to be rescued. But what would happen if you were to put all those flooded streets, bayous, and rivers together?

Thanks to data reported by CNN and the Washington Post, we have a general idea of the amount of water Texas took on over the past few weeks.

According to CNN, if you collected all the rain Texas received in May, it could cover the entire state with eight inches of water. Considering the state is about 268,000 square miles in size, that’s an incredible amount of water—about 37.3 trillion gallons of water, according to the National Weather Service.

The Washington Post used some now-outdated rainfall totals to determine what all could be done with that amount of water. Acre-feet are the standard by which floodwater is measured. Using acre-feet, represented by cubes, the Post created visuals that put Texas’s rainfall from May into perspective.

By the Post’s May 27 calculation of eight million acre-feet of rain, enough water fell on Texas to cover the entire state of Rhode Island in ten feet of water. Put all eight million of those acre-feet in a giant, metaphorical cube, and it would be big enough to trump the Statue of Liberty several times over and make the world’s tallest building look like a sandcastle. That amount of water, the Post calculated, would be enough to meet the water needs of New York City’s 8.4 million residents for seven years. It’s enough water to double the volume of Lake Mead, the largest water reservoir in the country.

And again, that was before the most recent storms washed through Texas over the weekend. (of May 30th)

For now, the forecast is clear of any upcoming rain. The rain that could have covered the entire state in eight inches of water is flowing back into the rivers and the Gulf. Previously empty bodies of water, like Austin’s Lake Travis, are now teeming with a fresh supply of rain. Communities are rebuilding and working to help those who lost friends and family to the floods. Bit by bit, the state is putting itself back together.

Leon River at the “Old Bridge” in Gatesville, TX.

Cowhouse Creek at Pidcoke, TX.