Implementation of the Double Bayou Watershed Protection Plan – Phase II

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Funding for this effort was provided through a Clean Water Act Nonpoint Source Grant administered by the Texas State Soil and Water Conservation Board from the U.S. Environmental Protection Agency.

5:30 **Welcome, Introductions, and Agenda**

- Double Bayou Watershed Protection Plan Recap

5:40 **Overview**

- Implementation Phase II Kickoff
- Feral Hog Fact Sheets

5:50 **Texas A&M Natural Resources Institute Feral Hog Interactive Demonstration**

6:35 **New Project Announcements**

- Bacterial Source Tracking Project
- Green Infrastructure Project

6:45 **Water Quality Management Plan Implementation Update**

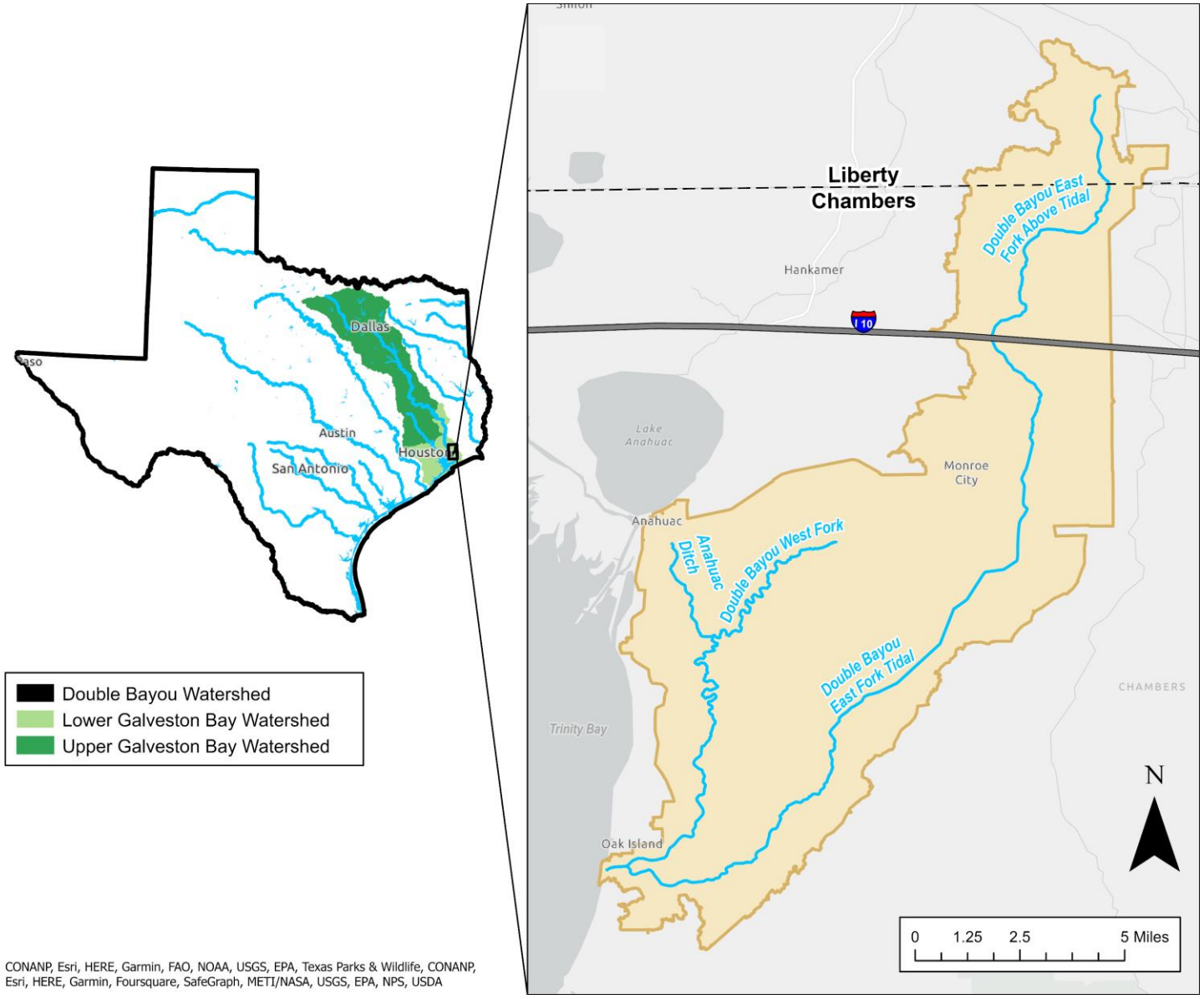
7:15 **Stakeholder Activity - Input on Your Watershed**

7:25 **Final Wrap-up, Announcements**

7:30 **Adjourn**

Double Bayou Watershed Protection Plan

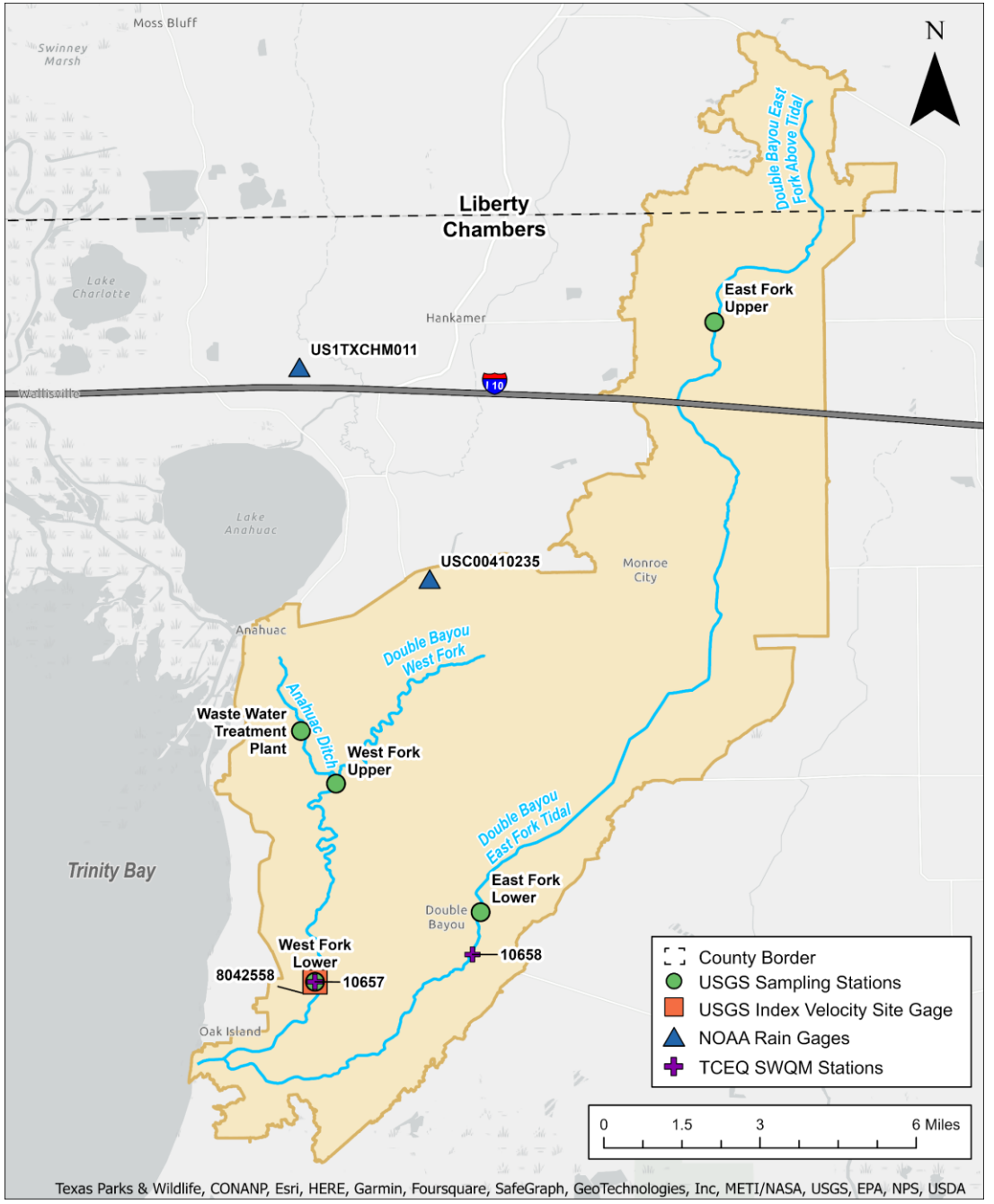
- Goal is to improve water quality utilizing a voluntary, collaborative, and stakeholder-driven approach
- Stakeholder-approved Double Bayou Watershed Protection Plan accepted by the U.S. Environmental Protection Agency in 2016
- Management measures, practices that reduce nonpoint source pollution, suggested by stakeholders to address water quality issues
- Phase I implementation completed agricultural, wastewater, and outreach management measures, including feral hog removal (September 2018 to May 2023)



Overview – Phase II Kickoff!

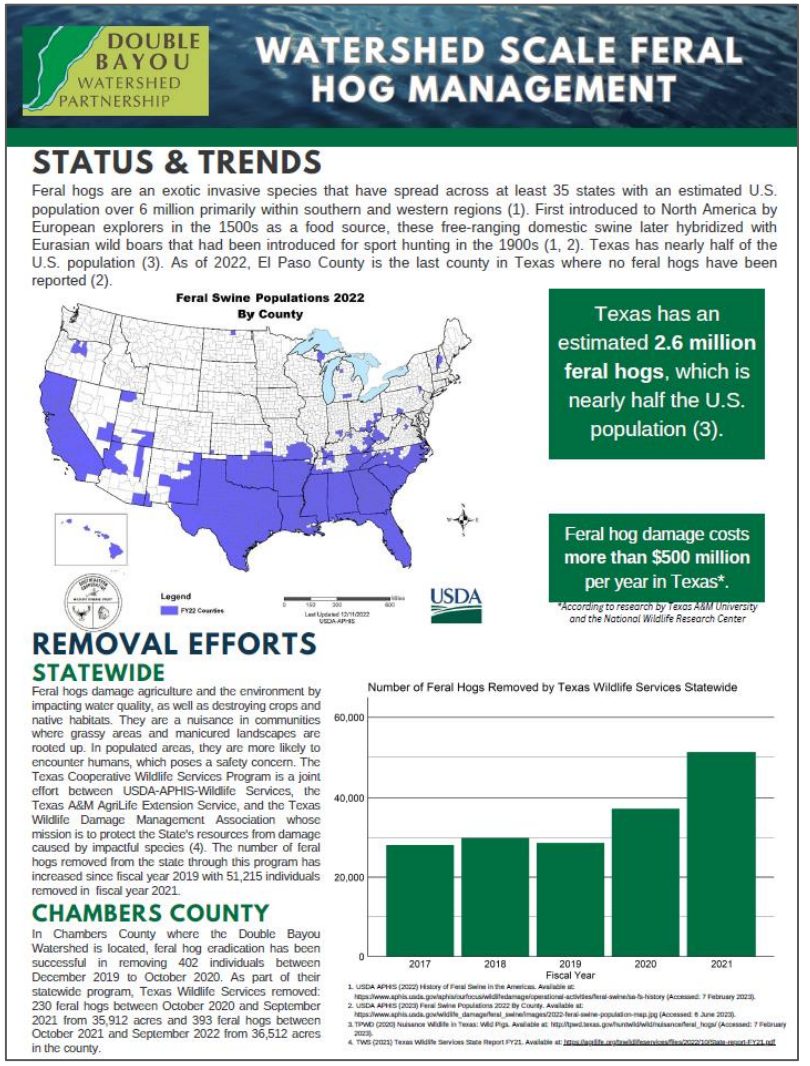
- The Texas State Soil and Water Conservation Board is funding implementation through September 2025

- Management measures are being pursued to protect and restore water quality in the East and West Forks of the Watershed:
  - Water quality monitoring at five locations
  - Bacterial Source Tracking*
  - Stakeholder Meetings
  - Workshops
  - Outreach and Education Opportunities
  - Water Quality Management Plans



New – Feral Hog Fact Sheets

- Two new fact sheets:
  - Impacts of feral hogs on water quality
  - Effective management strategies and local resources
- Available at https://www.doublebayou.org/toolsresources



DOUBLE BAYOU WATERSHED PARTNERSHIP

WATERSHED SCALE FERAL HOG MANAGEMENT

STATUS & TRENDS

Feral hogs are an exotic invasive species that have spread across at least 35 states with an estimated U.S. population over 6 million primarily within southern and western regions (1). First introduced to North America by European explorers in the 1500s as a food source, these free-ranging domestic swine later hybridized with Eurasian wild boars that had been introduced for sport hunting in the 1900s (1, 2). Texas has nearly half of the U.S. population (3). As of 2022, El Paso County is the last county in Texas where no feral hogs have been reported (2).

Feral Swine Populations 2022 By County

Legend

FY22 Counties

Texas has an estimated **2.6 million feral hogs**, which is nearly half the U.S. population (3).

Feral hog damage costs **more than $500 million** per year in Texas*.

*According to research by Texas A&M University and the National Wildlife Research Center

REMOVAL EFFORTS

STATEWIDE

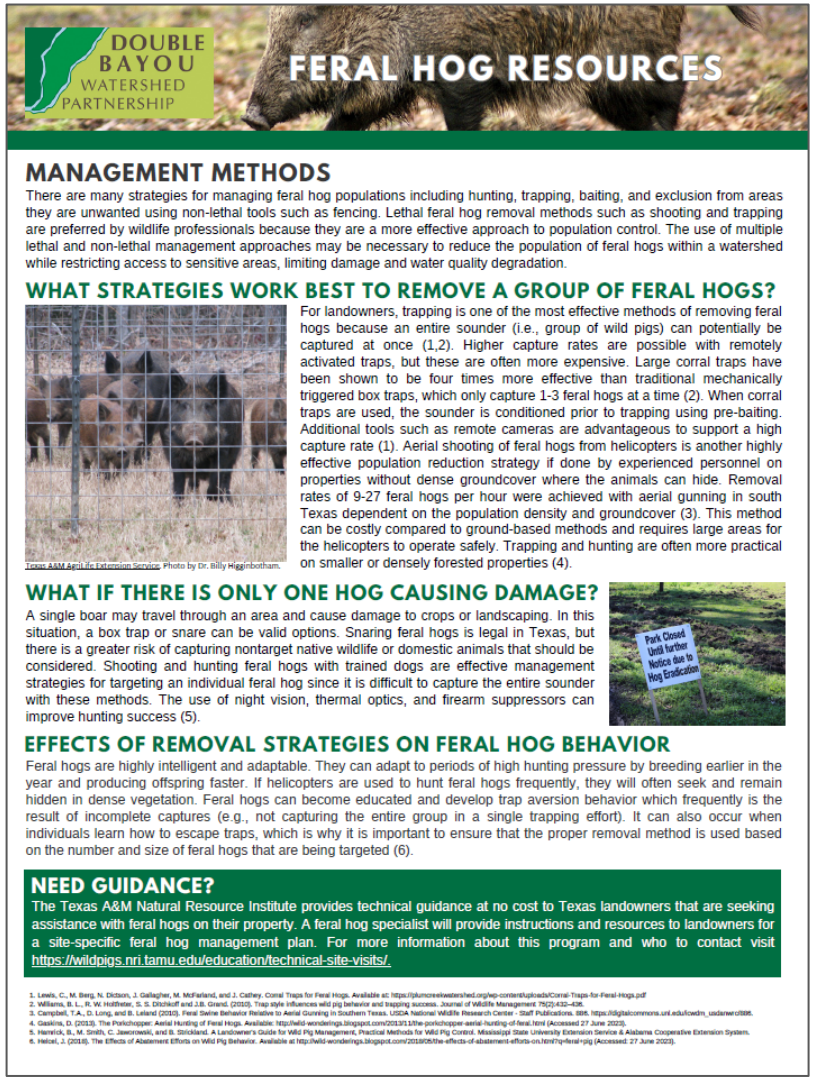
Feral hogs damage agriculture and the environment by impacting water quality, as well as destroying crops and native habitats. They are a nuisance in communities where grassy areas and manicured landscapes are rooted up. In populated areas, they are more likely to encounter humans, which poses a safety concern. The Texas Cooperative Wildlife Services Program is a joint effort between USDA-APHIS-Wildlife Services, the Texas A&M AgriLife Extension Service, and the Texas Wildlife Damage Management Association whose mission is to protect the State's resources from damage caused by impactful species (4). The number of feral hogs removed from the state through this program has increased since fiscal year 2019 with 51,215 individuals removed in fiscal year 2021.

Number of Feral Hogs Removed by Texas Wildlife Services Statewide

60,000
40,000
20,000
0
2017
2018
2019
2020
2021
Fiscal Year

CHAMBERS COUNTY

In Chambers County where the Double Bayou Watershed is located, feral hog eradication has been successful in removing 402 individuals between December 2019 to October 2020. As part of their statewide program, Texas Wildlife Services removed: 230 feral hogs between October 2020 and September 2021 from 35,912 acres and 393 feral hogs between October 2021 and September 2022 from 36,512 acres in the county.



DOUBLE BAYOU WATERSHED PARTNERSHIP

FERAL HOG RESOURCES

MANAGEMENT METHODS

There are many strategies for managing feral hog populations including hunting, trapping, baiting, and exclusion from areas they are unwanted using non-lethal tools such as fencing. Lethal feral hog removal methods such as shooting and trapping are preferred by wildlife professionals because they are a more effective approach to population control. The use of multiple lethal and non-lethal management approaches may be necessary to reduce the population of feral hogs within a watershed while restricting access to sensitive areas, limiting damage and water quality degradation.

WHAT STRATEGIES WORK BEST TO REMOVE A GROUP OF FERAL HOGS?

Texas A&M AgriLife Extension Service. Photo by Dr. Billy Higginbotham.

For landowners, trapping is one of the most effective methods of removing feral hogs because an entire sounder (i.e., group of wild pigs) can potentially be captured at once (1,2). Higher capture rates are possible with remotely activated traps, but these are often more expensive. Large corral traps have been shown to be four times more effective than traditional mechanically triggered box traps, which only capture 1-3 feral hogs at a time (2). When corral traps are used, the sounder is conditioned prior to trapping using pre-baiting. Additional tools such as remote cameras are advantageous to support a high capture rate (1). Aerial shooting of feral hogs from helicopters is another highly effective population reduction strategy if done by experienced personnel on properties without dense groundcover where the animals can hide. Removal rates of 9-27 feral hogs per hour were achieved with aerial gunning in south Texas dependent on the population density and groundcover (3). This method can be costly compared to ground-based methods and requires large areas for the helicopters to operate safely. Trapping and hunting are often more practical on smaller or densely forested properties (4).

WHAT IF THERE IS ONLY ONE HOG CAUSING DAMAGE?

A single boar may travel through an area and cause damage to crops or landscaping. In this situation, a box trap or snare can be valid options. Snaring feral hogs is legal in Texas, but there is a greater risk of capturing nontarget native wildlife or domestic animals that should be considered. Shooting and hunting feral hogs with trained dogs are effective management strategies for targeting an individual feral hog since it is difficult to capture the entire sounder with these methods. The use of night vision, thermal optics, and firearm suppressors can improve hunting success (5).

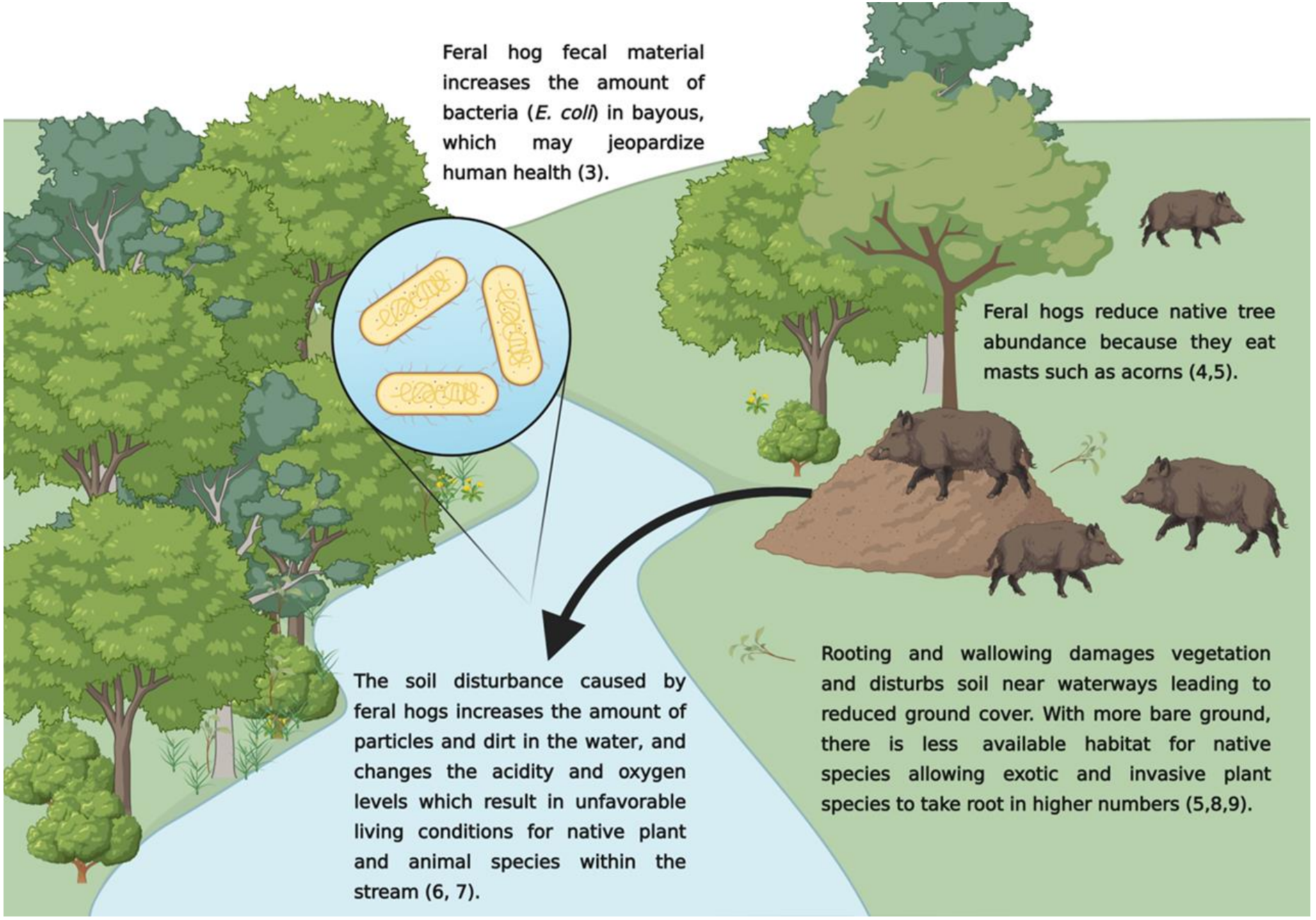
EFFECTS OF REMOVAL STRATEGIES ON FERAL HOG BEHAVIOR

Feral hogs are highly intelligent and adaptable. They can adapt to periods of high hunting pressure by breeding earlier in the year and producing offspring faster. If helicopters are used to hunt feral hogs frequently, they will often seek and remain hidden in dense vegetation. Feral hogs can become educated and develop trap aversion behavior which frequently is the result of incomplete captures (e.g., not capturing the entire group in a single trapping effort). It can also occur when individuals learn how to escape traps, which is why it is important to ensure that the proper removal method is used based on the number and size of feral hogs that are being targeted (6).

NEED GUIDANCE?

The Texas A&M Natural Resource Institute provides technical guidance at no cost to Texas landowners that are seeking assistance with feral hogs on their property. A feral hog specialist will provide instructions and resources to landowners for a site-specific feral hog management plan. For more information about this program and who to contact visit https://wildpigs.nri.tamu.edu/education/technical-site-visits/.

Let’s head outside for the Feral Hog Interactive Trapping Demonstration with Jay Long from the Natural Resources Institute



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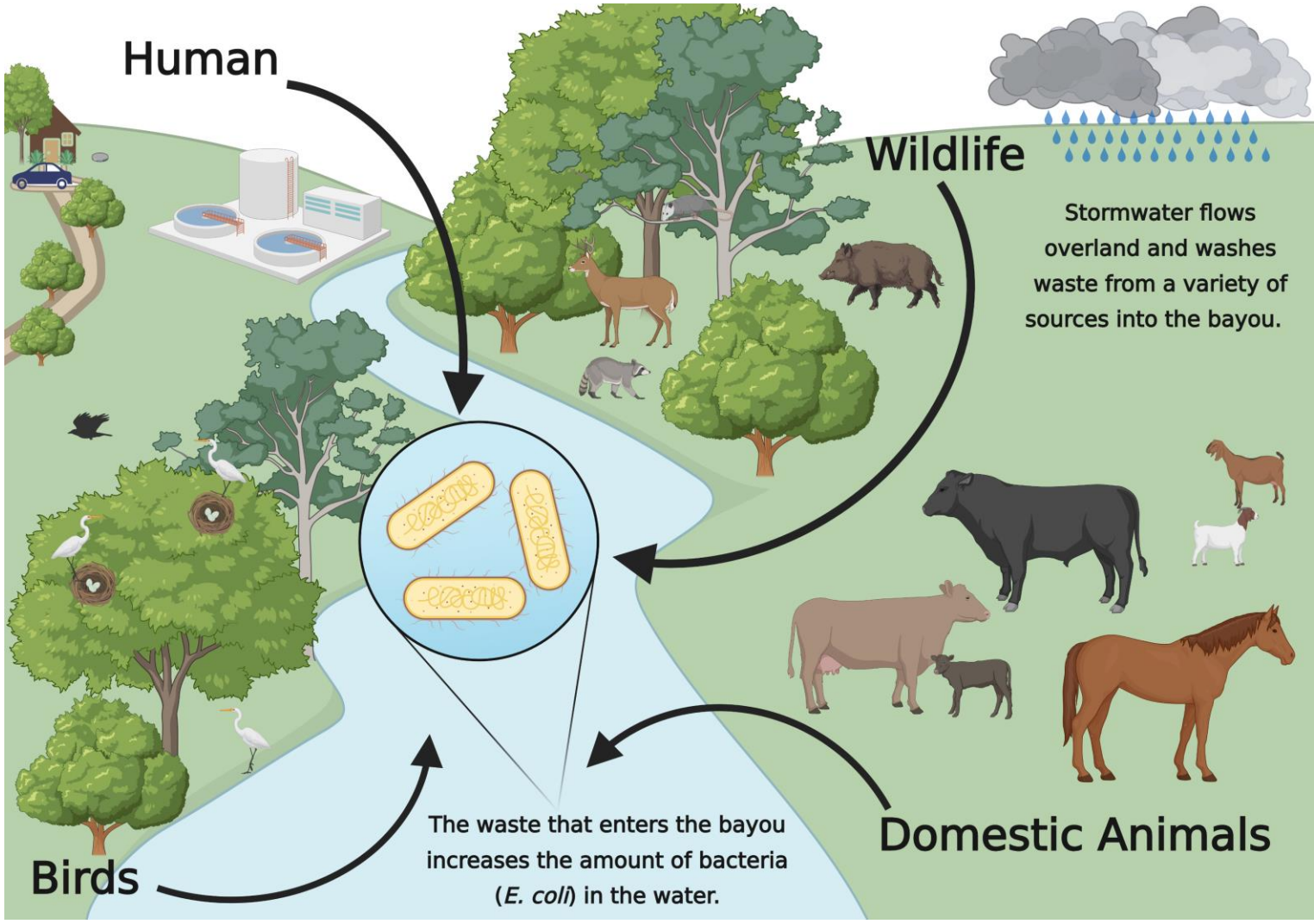
Bacterial Source Tracking Project

- Stakeholder recommend management measure
- Funding from the Texas State Soil and Water Conservation Board
- Study, started in August 2023, at four locations on the East and West Forks
- United States Geological Survey field-collect water samples and analysis by the Soil and Aquatic Microbial Laboratory at Texas A&M University
- Results expected in Spring 2024 to support implementation activities
- Identify solutions to reduce bacteria which exceed healthy levels in the East and West Forks of Double Bayou

Bacterial Source Tracking

- Many potential non-point sources of bacteria in a watershed
  - Wildlife, human, domestic animals, and birds
- Identify sources and how much is in water
- Match the sources' DNA ("fingerprint") to a database of known sources
- Helps to identify solutions
  - Focus on where and how to best to improve health of the bayous



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Overview – Green Infrastructure

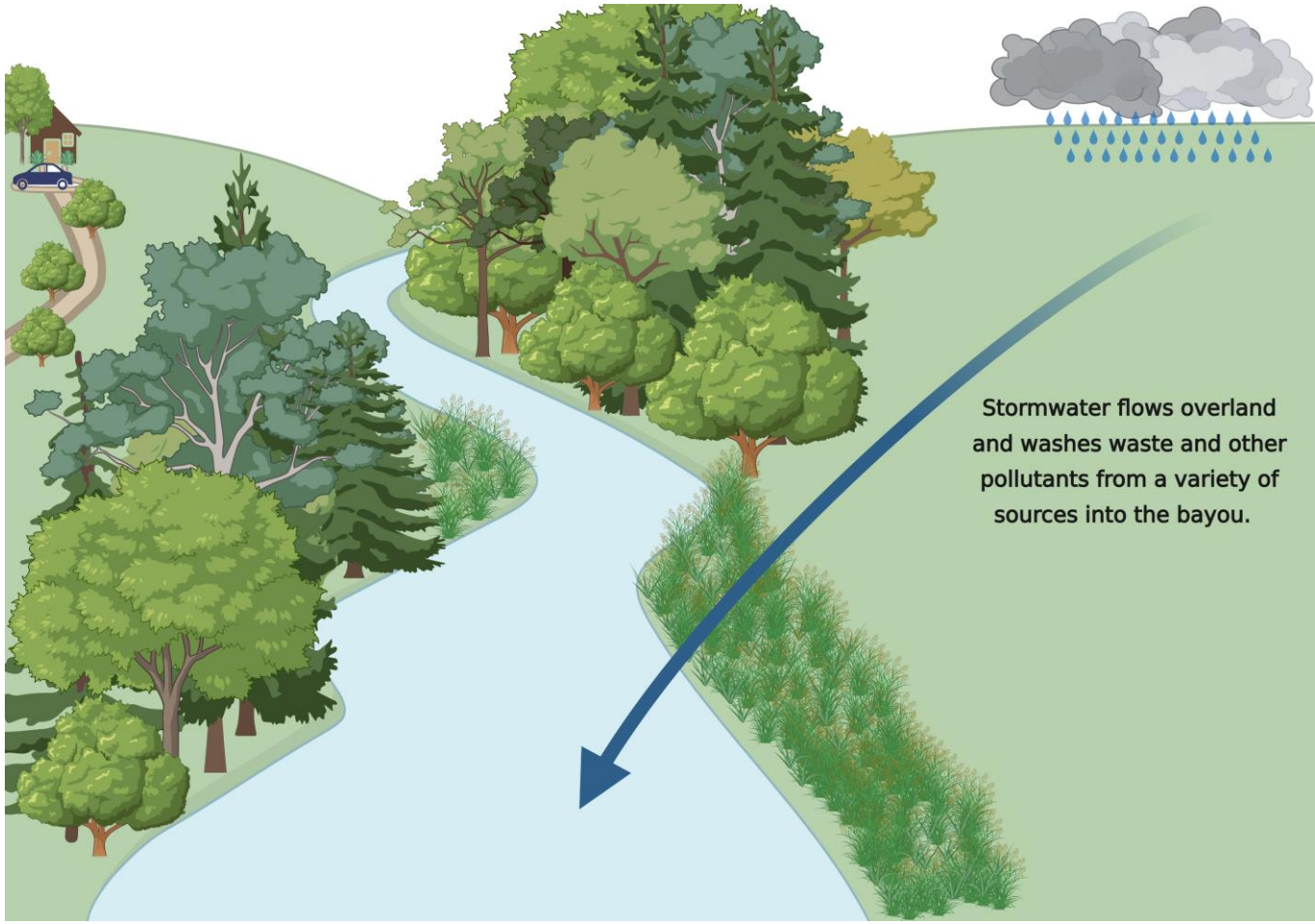
- Natures Toolbox - Natural or engineered practices
- Primary benefits include soaking up, storing, and filtering rainwater
- Compatible with Water Quality Management Plans
  - Soil and vegetation quality improvement
  - Best management practices
    - Prescribed grazing
    - Invasive brush management
    - Grass planting
- Local examples
  - Living shoreline
  - Forested stream banks
  - Wetlands


Living Shoreline at Job Beason Park


Double Bayou Park - East Fork

Double Bayou Green Infrastructure Project

- Goal – what type of Green Infrastructure may work best and where it could be placed
- Study, start Fall 2023, funding from the Galveston Bay Estuary Program
- Software program simulates the watershed and water quality to evaluate Green Infrastructure options
- Bacterial Source Tracking, water quality monitoring, + other know data sources
- Data only gets us so far, <u>your insights</u> can improve the results **Participation sign up sheet*
  - Where is wildlife habitat located?
  - Where are on-site septic systems located?
  - What crop types are planted in the watershed and where are they located (rice, etc.)?



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Stakeholder Activity - Input on Your Watershed

Field Trips

- Watershed Kayaking Tour
- Waste-Water Treatment Facility Tour

Workshops

- Texas Riparian & Stream Ecosystem Education Workshop
- Invasive Species – Invaders of Texas Workshop
- Healthy Lawns and Healthy Waters Workshop

Educational Opportunities

- Ag BMPs for Watershed Planning Training
- Feral Hog Management
- Water Quality and Monitoring
- Introduction to Septic Systems for Homeowners/Homeowner Maintenance of Aerobic Treatment Units
- Texas Well Owner Network – Well Informed Screening
- Urban Soil Health

Other topics/field trips/educational opportunities of interest?

Thank You for Coming!

WWW.DoubleBayou.org

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Funding for this effort was provided through a Clean Water Act Nonpoint Source Grant administered by the Texas State Soil and Water Conservation Board from the U.S. Environmental Protection Agency.