HOUSE COMMITTEE ON AGRICULTURE AND LIVESTOCK
TEXAS HOUSE OF REPRESENTATIVES
INTERIM REPORT 2004

A REPORT TO THE
HOUSE OF REPRESENTATIVES
79TH TEXAS LEGISLATURE

REPRESENTATIVE RICK HARDCASTLE
CHAIRMAN

COMMITTEE CLERK
MISSY WARREN

Committee On
Agriculture and Livestock

November 24, 2004

Representative Rick Hardcastle
Chairman

P.O. Box 2910
Austin, Texas 78768-2910

The Honorable Tom Craddick
Speaker, Texas House of Representatives
Members of the Texas House of Representatives
Texas State Capitol, Rm. 2W.13
Austin, Texas 78701

Dear Mr. Speaker and Fellow Members:

The Committee on Agriculture and Livestock of the Seventy-Eighth Legislature hereby submits its interim report including recommendations and drafted legislation for consideration by the Seventy-ninth Legislature.

Respectfully submitted,

Representative Rick Hardcastle

Sid Miller, Vice Chairman

Betty Brown

Lon Burnam

Delwin Jones

Pete Laney

David Swinford

Sid Miller
Vice-Chairman

Members: Betty Brown, Lon Burnam, Delwin Jones, Pete Laney, David Swinford

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INTRODUCTION

At the beginning of the 78th Legislature, the Honorable Tom Craddick, Speaker of the Texas House of Representatives, appointed seven members to the House Committee on Agriculture and Livestock. The committee membership includes the following: Rick Hardcastle, Chairman; Sid Miller, Vice Chairman; Betty Brown; Lon Burnam; Delwin Jones; Pete Laney; and David Swinford.

During the interim, the Committee was assigned three charges by the Speaker: 1) evaluate the impact of the feral hog population in Texas in relation to economic harm to landowners and to the potential threat of spreading highly contagious animal diseases, such as foot-and-mouth disease; 2) assess the state's brush control efforts to ensure that available programs and funding are utilized to fulfill their maximum potential and also examine the impact of invasive aquatic plants (hydrilla, water hyacinth, etc.) and animals (zebra mussels, etc.); and 3) monitor the agencies under the committee's jurisdiction.

The Committee has completed their hearings. The Agriculture and Livestock Committee has adopted and approved all sections of the final report.

Finally, the Committee wishes to express appreciation to the agencies, associations and citizens who contributed their time and effort on behalf of this report.

HOUSE COMMITTEE ON AGRICULTURE AND LIVESTOCK

INTERIM STUDY CHARGES

CHARGE Evaluate the impact of the feral hog population in Texas in relation to economic harm to landowners and to the potential threat of spreading highly contagious animal diseases, such as foot-and-mouth disease.

CHARGE Assess the state's brush control efforts to ensure that available programs and funding are utilized to fulfill their maximum potential and also examine the impact of invasive aquatic plants (hydrilla, water hyacinth, etc.) and animals (zebra mussels, etc.)

CHARGE Monitor the agencies under the committee's jurisdiction.

INTERIM CHARGE 1
FERAL HOGS

BACKGROUND

Hogs are an Old World species that have existed since before the Ice Age. Evidence indicates that early man hunted and ate feral swine and that these animals continued to thrive throughout the Stone Age in Europe and Asia. Hogs may have been domesticated about 7000 B.C. Explorers such as De Soto, Cortes and LaSalle brought them to the New World. Sporadic introduction of the Russian boar has also been made in Texas over the past century. Most feral hogs are simply free-ranging descendants of domestic pigs but will readily interbreed with the European wild boar. They have been in Texas since the 1680s and were important livestock to the early settlers, who usually allowed their animals to roam free. When confronted by war and economic hard times, settlers often had to abandon their homesteads on short notice, leaving their animals to fend for themselves. Thus, many free-ranging domesticated hogs became feral over time.

Texas is home to an estimated 1 1/2 to 2 million feral hogs (*Sus scrofa)*, about 50 percent of all the feral hogs in the United States. From the panhandle to the Gulf coast, from the arid southwest to the eastern pineywoods, feral hogs may be found in nearly every Texas county. (See Appendix A). Feral hog populations have rapidly increased across the state over the past 25 years.

Hypotheses as to why these rapid increases have occurred include: 1) indiscriminate stocking to provide an additional game animal for sport hunting and with specially trained dogs, 2) increases in supplemental feeding practices targeting wildlife (i.e. 300 million pounds of corn fed annually) primarily benefiting non-target species such as feral hogs, and 3) high intrinsic reproduction rates resulting in natural expansion of the feral hog's range exacerbated by 1 and 2 above. Feral hogs are the most prolific large, wild mammal in North America. With adequate nutrition, a feral hog population can double in 4 months.

Habitat

Feral hogs have adapted well to a wide range of ecosystems in Texas. They prefer moist bottomland and are commonly found in riparian areas near rivers, creeks, streams, lakes, ponds, marshes, bogs, swamps and sloughs. They also prefer dense vegetation that conceals them and protects them from temperature extremes. Only poor habitat and extremely arid conditions seem to limit their distribution. Hogs usually concentrate where food is plentiful. They may travel as much as 15 miles in search of adequate food and/or water. Unlike territorial animals, feral hogs do not travel throughout their entire range in short periods of time, but rather traverse the area randomly throughout the season.

Feral hogs are usually nocturnal. They may be active for a while during early morning or late afternoon, but only when temperatures are conducive and when seeking suitable shelter and wallowing areas. They seldom move around at mid-day unless disturbed.

Food

Feral hogs require high energy foods with lots of protein, so their diet is largely determined by

the nutrient levels of the foods available at a given time and will vary seasonally and regionally. They may become semi-nomadic to locate an abundant source of suitable food. They are opportunistic omnivores, eating almost anything and everything they find. They prefer succulent green vegetation along with a variety of animal material, fruit and grain.

Mortality
When conditions are good, feral hogs live an average of 4 to 5 years. Some live as long as 8 years. Mortality among juveniles, particularly during the first 3 months of life, is extremely high, but tapers off slightly throughout the first year. Juveniles may die from accidental suffocation by sows, starvation, parasites, disease, accidental death, hunting and predation. Adults are sometimes killed by coyotes, bobcats, mountain lions, large raptors and feral dogs.

DAMAGE AND DISEASE

Feral hogs cause various kinds of agricultural and environmental damage, mostly by rooting, wallowing and depredation. They also compete with wildlife and livestock for habitat, harbor endemic and exotic diseases, and transmit parasites to domestic livestock and humans.

Agricultural Damage
Hogs will feed on almost any agricultural crop they find, especially crops adjacent to riparian areas. They eat seeds, seedlings, mature crops, hay turf and gardens. Their rooting and trampling also damages crops. The financial losses to agricultural producers can be staggering.

Feral swine compete with livestock by rooting up and eating vegetation intended for livestock feed. Rooting creates troughs or mounds that can damage farm equipment and injure livestock. Rooting can also affect the plant composition of a pasture by promoting the growth of undesirable plants where hogs have destroyed desirable forage grasses. Once pastures are degraded in this way, landowners must spend considerable money and time restoring them to pre-swine conditions. Swine wallowing can severely muddy ponds and streams and cause algae blooms, oxygen depletion, bank erosion and soured water.

Feral hogs consume supplemental food and damage feeders and food plots intended for livestock and wildlife. When hogs frequent these sites, other animals often avoid them.

Fence damage-torn netting, holes, and weakened wires and posts can allow livestock to wander, give access to predators, and result in costly repairs. Hogs are so persistent and strong that they can breach all but the most expensive and sturdy fence.

Environmental Damage
Measuring the environmental impact of feral hogs can be difficult. Most important is the destruction of the habitat of native wildlife and the predation of wildlife. Feral hogs compete for food with many other animals, including white-tailed deer, javelina, turkey, bobcat, and various small mammals. Swine often deplete specific food sources on which other species depend for survival. Extensive rooting of soils, forest litter and grasslands can cause serious erosion of riparian areas, which leads to siltation, lower water quality, and sometimes fish kills. Rooting may also disrupt native plants and change the plant and animal community.

Predation
Predation of livestock and wildlife by feral hogs can be a serious problem in some areas. When the opportunity presents itself, hogs prey upon kids, lambs, calves, deer, fawns, ground-nesting birds, and a variety of other animals. Some hogs become highly efficient predators. They generally prey upon young animals, but will kill injured or weak adults. Hog predation can be hard to detect because hogs often eat the entire animal, leaving little or no evidence.

Diseases and Parasites
Feral hogs are susceptible to a variety of infectious and parasitic diseases. The more hog populations increase and expand, the greater the chances that they may transmit disease to other wildlife, to livestock and to humans. External parasites that infest feral hogs include fleas, hog lice and ticks. Internal parasites include roundworms, liver flukes, kidneyworms, lungworms, stomach worms and whipworms. Hog diseases that could have severe repercussions for agribusiness include swine brucellosis, pseudorabies, leptospirosis, tuberculosis, tularemia, trichinosis, plague and anthrax. Exotic or foreign diseases of concern include foot and mouth disease, African swine fever, hog cholera and swine vesicular disease.

Foot and mouth disease is a foreign animal disease of great concern because it is highly contagious, spreads rapidly, can cause serious economic losses, and can constrain international trade in livestock products. It is a viral disease of ungulates (mainly cloven-hoofed ruminants, including swine) and some rodents. The virus can be spread by contact with infected animals and with contaminated feed, water or equipment. It does not affect humans, but humans can spread the virus. There is no known cure.

CONTROL METHODS

Once feral hogs have become established in an area, it is nearly impossible to remove all of them. However, with an integrated approach one can control the size of the population and keep hog damage at an acceptable level.

Hogs can be controlled with exclusion, snares, live traps, shooting and aerial hunting. There are no toxicants, repellents, fertility agents or biological control agents registered for use against feral hogs in the U.S. Such products have had limited success in other countries, but the cost of developing and registering them for use in the U.S. has been prohibitive.

In Texas, feral hogs are considered free-ranging exotic animals and may be taken at any time of the year by any legal means. The Texas Animal Health Commission regulates the trapping and moving of feral hogs to help prevent the spread of infectious diseases.

Exclusion
Modifying habitat, changing animal husbandry practices, and building fences are a few of the ways feral hogs can be excluded from an area. However, these methods may be cost prohibitive, especially over large acreages. Fencing small areas may be helpful. Mesh wire fencing used in

combination with electric fencing is most successful at excluding hogs. Chain link fencing also can be used if a sufficient portion is buried underground. Unfortunately, fencing seldom controls hogs permanently. They eventually find their way through most fences, regardless of the design. Also, fences have to be maintained, which increases the cost.

Snares

Snares are excellent tools for managing feral hogs. They can be placed on fences where hogs are crossing or along hog trails. A snare consists of a flexible wire cable loop, a sliding lock device, and a heavy swivel. The cable should be either 3/32 or 1/8 inch in diameter and up to 48 inches long. Neck and leg snares can also be used.

Snares have several pros and cons. They are relatively inexpensive, require minimum equipment for installation, and need little maintenance. However, they will catch a variety of animals (including deer), not just hogs. They need to be located where the chance of catching non-target animals is minimized.

Cage Traps

Cage traps are often used with feral hogs and have several advantages. They interfere little with normal hog behavior, can be either permanent or portable fixtures, can catch several hogs at once depending upon the size and design of the trap, and allow the trapper to release any non-target animals that are caught. Captured hogs can be slaughtered or sent to market. Trapped hogs should not be relocated without checking with the Texas Animal Health Commission for the latest restrictions on relocation. Releasing feral hogs is not recommended because they are destructive and may transmit disease. Trapping is most successful during cooler months.

Shooting

Hogs can be shot when the opportunity arises, but this usually will not reduce the population to a great extent. Ground shooting might be effective if it is intensive and if the hog population is small. Current Texas law does not require a landowner or landowner's agent or lessee to have a hunting license if feral hogs are damaging the landowner's property. Feral hog hunting has become popular in Texas and generates income for many landowners. Feral hog hunting can take place year-round, but most hunters take feral hogs incidental to deer hunting. As feral hogs are attracted to supplemental feeding sites and deer feeders, these can be prime areas for hunting them. However, they are very intelligent and can be a challenging foe. Intensive hunting may cause feral hogs to shift their home range or become more nocturnal.

Aerial Hunting

With proper permits and licenses, aerial hunting is a legal method of controlling feral hogs in Texas. Most aerial hunting is done with helicopters. There must be an experienced pilot and a capable gunner. Aerial hunting can stop a damage problem quickly and is very highly selective because only targeted animals are killed. Aerial hunting also can be used in areas that are inaccessible to other management methods. Depending on the amount of damage hogs are causing, the benefits of an aerial hunt can far outweigh the costs (which can be $300 or more per hour flown). Like all other control methods, aerial hunting does have limitations. Rough terrain, poor weather, heavy cover, high cost, and the inherent hazards of low-level flight are all factors to consider.

SURVEY ON FERAL HOGS IN TEXAS

A 2003-04 statewide survey of 775 landowners from 115 different counties conducted by Texas Cooperative Extension (TCE) and the Texas Agricultural Experiment Station (TAES) [1], indicated that 80% of the landowners surveyed reported that they had feral hogs on their property. The majority of the respondents were either ranchers (74%) or farmers (18%). Seventy-one percent of those surveyed believed feral hog populations were on the increase and 89% characterized them as agricultural pests, a disease hazard (34%), and environmental liability (45%) or an economic liability (50%). Only 30% of the survey respondents considered feral hogs to be a recreational asset to hunters.

The types of damage reported by landowners include rooting damage to roads, ponds and fields (87%), wallowing in streams and ponds (65%), crop damage (53%), feed loss (49%) and fence damage (47%). The average economic loss due to hog damage since they first appeared on the property was $7,515 per landowner, and these landowners had spent an average of $2,631 on control efforts and/or repairing damage caused by feral hogs. Feral hog property damage in South Texas, the Edwards Plateau, and the Rolling Plains averaged greater than $10,000 per landowner - while being between $1,800 and $6,000 in other regions of the State.

Hog control efforts were conducted only incidentally to other ranching/farming activities by the majority (61%) of the respondents with feral hogs present. Most (90%) of the control efforts were conducted by the landowners themselves while the most common means of control employed were shooting (87%) and trapping (75%).

TEXAS COOPERATIVE EXTENSION ACTIVITIES

Control Efforts

Feral hog numbers taken by TCE - Wildlife Services have steadily increased since the early 1980s. During FY 2003, Wildlife Services personnel took 8,465 feral hogs from 478 properties, and verified over $1.4 million in specific property loss and damage due to feral hogs. Most of these properties were in the Edwards Plateau, Rolling Plains, and South Texas where economic damage tends to be the greatest. Since 1998, the take of feral hogs by Wildlife Services has almost doubled, with notable increases in the western Rolling Plains and Trans Pecos reflecting the expansion of feral hog populations westward. (See Appendix A).

Extension Education and Outreach

Texas Cooperative Extension has 5 Extension Wildlife Specialists who deliver educational programs that includes some emphasis on feral hog management. These Specialists train and support County Extension Agents as they assist their local clientele in solving feral hog problems.

Wildlife Specialists in San Angelo have developed a 30 minute video "Coping with Feral Hogs", to teach effective and appropriate feral hog control techniques including trapping, snaring, and fencing methods. This video is due to release within the next 2 months[2].

During the past year, Wildlife Specialists and County Agents conducted 5 feral hog workshops, reaching over 400 farmers and ranchers with training on control methods, and hog hunting as an alternative revenue source.

At the request of the Texas Department of Agriculture, TCE recently developed the "Coping with Feral Hogs" website (http://feralhogs.tamu.edu/) which serves as a centralized resource for control and management information, publications, news releases, and notices about public meetings and educational events for managing feral hogs.

The TCE communication campaign has recently resulted in high-profile news articles, presenting information on feral hogs in every major news outlet in the state. Recent articles include the April 12, 2004 article in Washington Times ("Hog Wild in Texas") and the February 15, 2004 article in the Austin American Statesman ("Texas' feral hogs are living up to their name").

Field Research

Primarily through grant funding, TAES has several recent and ongoing research efforts addressing important management issues for feral hogs in Texas.

- Scientists near Uvalde, Texas are monitoring the interaction of feral hogs and cattle using markers equipped with Global Positioning Systems (GPS). The results will be used to develop models for combating foreign animal disease outbreaks should feral hogs become infected. The objective is to provide information to better protect livestock from an intentional or accidental introduction of disease in feral hogs. This research is supported by a USDA grant[3].

- With funding from the National Park Service and USDA, TAMU scientists are identifying the most cost effective measures of feral hog population control on public lands in eastern Texas. This research includes a synthesis of methods to control feral hogs, testing of the three most feasible methods, and determining the cost-benefit of these three methods[4].

- In 1999, TAMU Scientists developed a new and more efficient hog trap as part of research into habitat management and control on reclamation areas of the Big Brown mine in East Texas[5].

- Scientists in the Department of Wildlife & Fisheries Sciences collected 500 feral swine in 34 Texas counties in 1995, testing them for swine brucellosis and pseudorabies. Swine brucellosis was not detected at the time, but the prevalence for pseudorabies was 17.4%. Although this was several years ago, the study suggested that feral swine have a limited probability of transmitting the two diseases to domestic swine at the time of the study[6].

RECOMMENDATIONS

With the growing concern of food safety for Texas livestock, and the possible transmittal of disease from feral hogs to other wildlife, to livestock and to humans, the Committee recommends to the Legislature to support and fund the efforts of state agencies to control the population of feral hogs.

The Legislature should support a two-year research/demonstration effort designed to initiate a feral hog abatement program within Texas. The Texas Cooperative Extension (TCE) can provide leadership and coordination through the Department of Wildlife & Fisheries Sciences and Wildlife Services (formerly Texas Wildlife Damage Management Service). TCE will coordinate with other agencies including Texas Parks and Wildlife Department, Texas Department of Health and the Texas Department of Agriculture.

The above entities will collaboratively select four geographic areas (note: selection based on ecological areas) that are experiencing severe economic loss to agricultural enterprises (crops). Trappers will be hired to work directly with landowners using all legal control means available on a sustained basis to reduce feral hog populations and limit economic impact on the targeted agronomic enterprise. These individuals will work closely with county Extension agents in testing control methodologies (i.e. trap technology) as result demonstrations and then jointly conduct Extension programming to share strategies with additional producers. Pre-control survey data will be collected in order to ascertain damage estimates and post-control surveys will be utilized to measure the impacts of these concentrated and focused control efforts. Measurement of program success will be based on increases in agronomic yields ($ per acre basis) as a result of feral hog population control efforts. The cost:benefit ratio of this program can then be used to expand the program statewide.

Additional Opportunities

1) Review current population data available on feral hogs by ecological region and develop a protocol to collect information on representative habitat where data is missing in order to update feral hog population estimates. Primary sources of this information will be individual ranch census data where hog numbers are collected incidentally while deer populations are assessed. GIS technology can then be utilized to project updated population estimates.

2) Investigate the potential to work with private industry and national government organizations (NGOs) to make feral hogs collected through control efforts available as a high quality protein source for human consumption.

3) Continue to coordinate feral hog control workshops and applied research/result demonstrations through county Extension agents in all counties within the region where feral

hogs occur.

BUDGET

Project would be ultimately coordinated by the Texas Department of Agriculture with $500,000 over a two-year period.

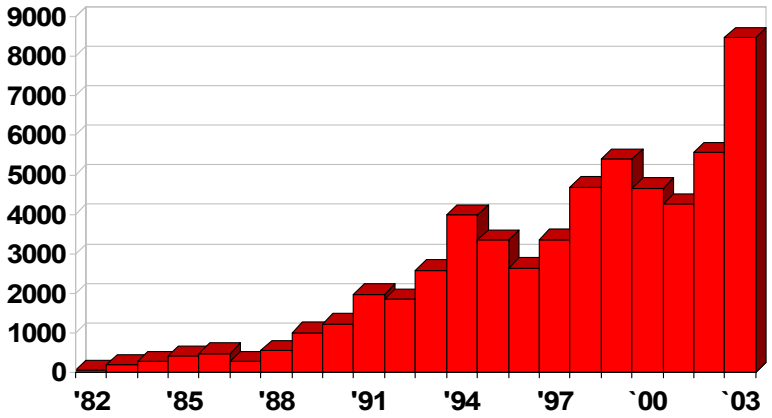
APPENDIX FOR FERAL HOGS

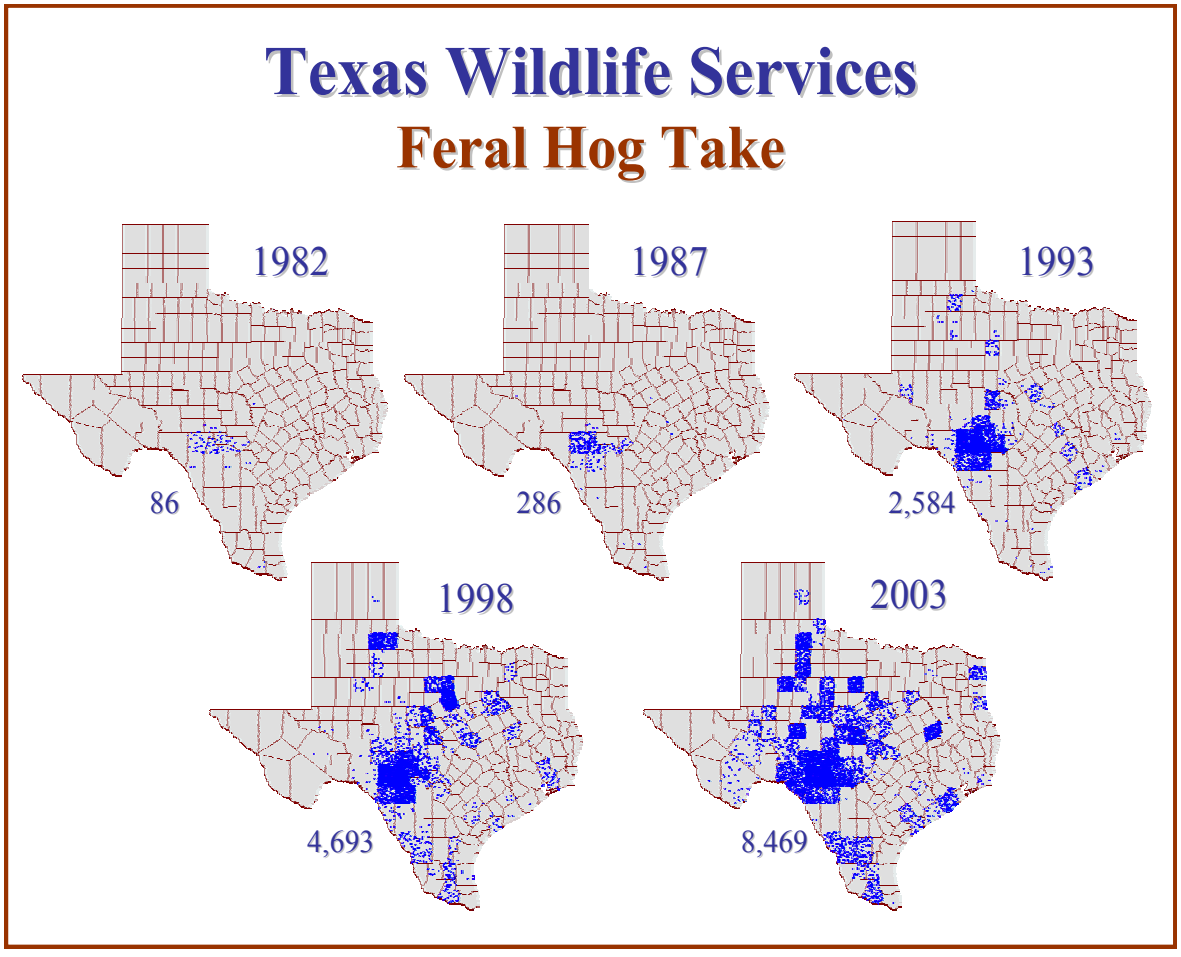
Appendix A

Feral Hog Take

Feral Hog Take 1982-2003

Texas Cooperative Extension – Wildlife Services





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INTERIM CHARGE 2
BRUSH CONTROL

BACKGROUND

Water will likely be the most limiting natural resource in Texas in the future (Texas Water Development Board 1997). The ability to meet the water needs will significantly impact growth and economic well-being. The U.S. Natural Resource Conservation Service (NRCS) estimates that brush in Texas uses about 10 million acre-feet of water annually, versus 15 million acre-feet per year for current human use. Possible benefits of brush control affecting water supplies are: additions to State water supplies, recharge of groundwater aquifers, and spring flow enhancement.

Numerous written descriptions by early European settlers, summarized by Smeins et al. (1997), characterize most of Texas rangelands as grassland or open savanna. Prior to European settlement, grazing pressure tended to be light and/or periodic, thus allowing a robust stand of grass to establish. Most tree seeds deposited in a healthy grassland die soon after they germinate because they are unable to compete with the established grass for water and light. The few tree seedlings that are able to survive the competition with grass tend to perish in wildfires which periodically occur in "natural" rangelands. Thus, with fire and light grazing pressure, grasslands and savannas are stable and sustainable ecosystems characteristic of many Texas rangelands.

European settlement of rangelands altered the grazing and fire characteristics which had previously enabled grasslands to dominate the landscape. Continuous, often heavy, livestock grazing pressure reduced the ability of grasses to suppress tree seedling establishment. Furthermore, some invasive woody species (e.g., juniper and mesquite) have noxious chemicals in their leaves, resulting in livestock tending to avoid browsing the tree seedlings while repeatedly grazing the adjacent, palatable grasses. This selective grazing behavior gives unpalatable tree seedlings a competitive advantage over grasses. European settlers tended to aggressively suppress fires, a task made easier because continuous, heavy grazing pressure removed the fuel needed to carry a fire. Removal of fire and/or heavy grazing pressure created an environment that favored increased dominance of shrubs and trees in what had previously been grasslands or savannas. This pattern of vegetation change coincides with European settlement of rangelands throughout the world (Archer 1994).

Large increases in woody cover can adversely affect ranching operations by increasing the costs of management and decreasing the livestock carrying capacity. Therefore, ranchers have a vested interest in controlling brush. For example, analysis of the 80 square mile Cusenbary Draw watershed near Sonora, Texas revealed that investments in brush control by ranchers were able to keep overall brush cover within the watershed between 22% to 24% between 1955 and 1990 (Redeker et al. 1998). Some of the pastures within the watershed did not have any brush control applied. Brush cover on those sites increased to 37% over the same period. This illustrates the increase in shrub cover over a 35-year period that is possible in the area without a proactive policy of brush control.

Ranches throughout several regions of Texas are increasingly being subdivided into smaller parcels that are used mainly for recreation (Rowan 1994). According to survey data from the Edwards Plateau, landowners are less inclined to invest in brush control if they are not reliant on livestock income (Garriga 1998). As the demographics of rangeland owners shift away from an emphasis on livestock production, and as long as fire continues to be suppressed, it is likely that woody cover will continue to increase unless incentives are provided to encourage brush management.

Brush in Texas

All major land resource areas (MLRA) in Texas have significant brush infestations; however, different species predominate in different regions. Appendix 1 shows the major brush species and level of infestation in Texas based on brush surveys in 1982 and 1987 and 1991. These acreages illustrate the magnitude of Texas' brush problem. While not all species of brush are significant users of water, prickly pear, for example, others such as juniper and mesquite have been shown to drastically reduce water yield in a watershed.

Legislative Action

In 1985, Senate Bill 1083, Acts of the 69th Legislature, Regular Session created the Texas Brush Control Program. The goal of this legislation, which was authored by Senator Bill Sims of San Angelo, is to enhance the State's water resources through selective control of brush species. This statute was codified in Chapter 203 of the Texas Agricultural Code. The Texas State Soil and Water Conservation Board (TSSWCB) is designated as the agency responsible for administering the program and is given authority to delegate responsibility for administering certain portions of the program to local soil and water conservation districts. In 1986, in accordance with Section 203.051, Agriculture Code, the TSSWCB prepared and adopted a State Brush Control Plan. The plan includes a comprehensive strategy for managing brush in areas where brush is contributing to a substantial water conservation problem and designates areas of need in the state in which to implement the brush control program. It was last revised in January 2002.

Section 203, Subchapter E created a cost share program for brush control, created the Brush Control Fund, limits the cost share rate to 70% of the total cost of a practice, and limits the cost share program to areas designated by the TSSWCB and to methods of brush control approved by the TSSWCB. It also establishes criteria for approving applications, setting priorities and contracting for cost sharing.

Texas Agriculture Code Chapter 203 requires the TSSWCB to adopt rules to carry out the Brush Control Program. These rules are codified in the Texas Administrative Code, Title 31, Part XVII, Chapter 517. The TSSWCB adopted program guidance for implementation of the Brush Control Program in designated areas. Topics include applying for brush control program assistance, developing individual brush control plans, preparing brush control contracts, certifying completion of practices, and providing payment to landowners.

Senate Bill 1828

Several changes were made to the Brush Program as a result of the 78th Regular Session's Senate Bill 1828. These implemented changes include consultation with the Texas Department of Agriculture and the Texas Water Development Board, lowering the maximum cost share for private landowners to 70%, and establishing cost-share for public lands at 100% and 50% political sub-divisions.

The State Board will work closely with other State agencies to utilize their expertise and resources in the process of developing and implementing brush control studies and projects. Wildlife habitat and endangered species issues will be coordinated with Texas Parks and Wildlife. The expertise of the Texas Agricultural Experiment Station will be utilized in watershed modeling and brush control areas. Resources for landowner education will be provided by the Texas Agricultural Extension Service. The State Board will cooperate with the Texas Water Development Board on groundwater and streamflow monitoring, regional water needs, and regional water plans. Cooperation with USDA-NRCS will be essential in developing and implementing individual landowner plans. River Authorities will provide local and regional knowledge into the planning process and feasibility studies.

Overview of Brush Management Program

Brush management will be accomplished through a series of watershed or sub-watershed projects in areas in which brush management shows a strong potential to significantly increase water yield. The process will be briefly summarized here, and each element of the process will then be discussed in further detail. The elements of the brush management plan are:

- Brush Control Area
- Project Development
- Project Approval and Prioritization
- Project Implementation

The State Board may delineate areas in which brush control has a strong potential to increase water yield. Area delineation will be based on watershed studies—scientific studies, modeling, climate, hydrology—brush infestation, and water needs. Soil and water conservation districts will manage individual projects. Within an area, districts may develop brush control projects where there is sufficient local support. Project proposals will be submitted to the State Board for approval. After receiving a project proposal, the State Board, through staff and other experts, may conduct additional feasibility studies of the project area. A project that meets all requirements may then be approved by the State Board. If there are more project proposals than can be supported by available cost-share funds, the State Board will prioritize the projects, favoring the areas with the most critical water conservation needs and the projects that will be most likely to produce substantial water yields. The State Board will approve brush control methods on the State level and furnish the list to districts for use in developing individual plans. The State Board will set maximum cost-share rates for individual projects. Districts will set cost-share rates and costs for practices for individual plans. Districts may contract with landowners to develop and implement individual brush control plans within project areas. Landowners may then implement brush control plans and receive cost-share payments upon completion of the brush control practices specified in the individual plans.

Brush Control Areas

The State Board will delineate brush control areas for projects and cost-share funding based on watershed studies conducted by the State Board and local soil and water conservation districts in cooperation with other State agencies, universities, and appropriate local interests. Watershed studies will consider the following criteria:

- Brush type, density, and canopy cover
- Geology and soils data
- Water needs or potential needs
- Hydrology
- Potential water yield
- Wildlife concerns
- Economics
- Landowner interest

In general, the results of watershed studies will be used to delineate areas within the general brush control area (16 – 36 inch rainfall area) of the State. This delineation is not meant to pick out specific projects, but rather to set areas in which projects will be eligible for brush control cost-share. Because of the many factors involved in developing a successful project such as willingness of the local people to participate, landowner cooperation, social and economic considerations, and wildlife concerns, project applications must come from the local level.

General Brush Control Area

The general area eligible for watershed studies statewide is based on the location of infestations of mesquite, blue-berry and red-berry junipers, South Texas brush complex, and salt cedar. Areas in Texas with infestations of these species located between the 16-inch rainfall belt and the 36-inch rainfall belt may be considered for feasibility studies (See Appendix 2). Proposed studies for watersheds located outside of this area may be reviewed by the Board on a case-by-case basis.

FEASIBILITY STUDIES

In 1998, a year-long study was completed on the North Concho River watershed to determine potential water yields from a comprehensive brush control program on the river's 950,000-acre watershed. The study was funded with a grant from the Texas Water Development Board and conducted by the TSSWCB, Texas A&M Research and Extension Center, and the Upper Colorado River Authority. The report found that the North Concho River watershed has the potential for increased water yield through brush control.

In 1999, the legislature appropriated $1,000,000 to the TSSWCB to conduct eight brush control feasibility studies. The TSSWCB submitted the feasibility studies for the following basins to the 77th Legislature in January 2001: (1) Frio River Basin, (2) Nueces River Basin, (3) Pedernales

River Basin, (4) Wichita River Basin, (5) Canadian River Basin, (6) Middle Concho River Basin, (7) Upper Colorado River Basin, (8) Edwards Aquifer. Texas A&M and USDA-Natural Resources Conservation Service Water Resources Assessment Team: (1) performed modeling to determine water yields, (2) used economic analysis to determine the feasibility of brush control projects in each watershed, and (3) produced a final report describing their results. Local river authorities and water districts provided information on historic land use and hydrology of each watershed, assessed changes in land use and hydrology due to brush infestation, and assembled final reports for each watershed for submittal to the 77th Legislature.

The feasibility of using brush control to enhance water yield was studied in the (1) Lake Arrowhead, (2) Lake Brownwood, (3) Lake Fort Phantom Hill, and (4) Lake Palo Pinto watersheds. The 77th Legislature provided $500,000 to initiate these brush control feasibility studies. These watersheds are identified in the State Brush Control Plan as reservoirs where brush control could enhance water supplies. The final reports were delivered to the Texas Legislature in December 2002.

BRUSH CONTROL PROJECT UPDATES

(Texas Brush Control Program for the
House Committee on Agriculture & Livestock
Hearing on July 14, 2004) (Appendix 3)

North Concho

The North Concho Watershed project was initiated September 1, 1999. It is approximately 953,000 acres in size with approximately 432,000 acres of brush. Cost share funding in the amount of $13,253,950 has been made available in the North Concho River watershed.

- 370,715 acres were under contract to be treated at a cost of $13,173,242
- 238,700 acres had been treated at a cost to the State of $9,837,267

Pedernales

The Pedernales Watershed project was initiated September 1, 2002. It is approximately 815,000 acres in size with approximately 200,000 acres of brush. It is divided into 35 sub-basins with 13 sub-basins currently eligible for cost-share. Cost share funding in the amount of $4,001,199 has been made available in the Pedernales River Watershed.

- 59,708 acres were under contract to be treated at a cost of $3,987,521
- 45, 750 acres had been treated at a cost to the State of $2,987,224
- Currently have 116 active contracts, 170 completed contracts, 286 total contracts

Twin Buttes

The Twin Buttes Watershed project was initiated September 1, 2003. It is approximately 2,423,854 acres in size with approximately 1,015,407 acres of brush. It is divided into 69 sub-basins with 28 sub-basins currently eligible for cost-share. Cost share funding in the amount of $8,295,950 has been made available in the Twin Buttes Watershed.

- 179,862 acres were under contract to be treated at a cost of $8,178,285
- 124,854 acres had been treated at a cost to the State of $5,961,440
- Currently have 134 active contracts, 51 completed contracts, 185 total contracts

Spring Creek/Dove Creek
The Spring and Dove Creek Watershed project was initiated September 1, 2002. It is approximately 163,000 acres in size with 77,468 acres of brush. It is divided into 23 sub-basins with 3 sub-basins eligible through the Spring and Dove Creek Special Project. Cost share funding in the amount of $1,146,275 has been made available in the Spring/Dove Watershed.

- 37,829 acres were under contract to be treated at a cost of $1,040,935
- 18,958 acres had been treated at a cost to the State of $649,329
- Currently have 16 active contracts, 5 completed contracts, 21 total contracts

Pecan Creek
The Pecan Creek Watershed project was initiated September 1, 2003. It is approximately 60,400 acres in size with approximately 43,000 acres of brush. It is divided into 13 sub-basins with all sub-basins eligible for cost-share. Cost share funding in the amount of $323,764 has been made available in the Pecan Creek Watershed.

- 12,195 acres were under contract to be treated at a cost of $323,589
- 10,095 acres had been treated at a cost to the State of $232,774
- Currently have 3 active contracts, 2 completed contracts, 5 total contracts

Lake Ballinger
The Lake Ballinger Watershed project was initiated September 1, 2002. It is approximately 148,849 acres in size with approximately 54,485 acres of brush. It is a sub-basin of the Upper Colorado Watershed. Cost share funding in the amount of $484,886 has been made available in the Lake Ballinger Watershed.

- 8,570 acres were under contract to be treated at a cost of $406,901
- 5,676 acres had been treated at a cost to the State of $263,332
- Currently have 45 active contracts, 20 completed contracts, 25 total contracts

Oak Creek Lake
The Oak Creek Lake Watershed project was initiated September 1, 2003. It is approximately 151,532 acres in size with approximately 96,616 acres of brush. It is a sub-basin of the Upper Colorado Watershed. Cost share funding in the amount of $1,095,765 has been made available in the Oak Creek Lake Watershed.

- 17,661 acres were under contract to be treated at a cost of $803,068
- 12,624 acres had been treated at a cost to the State of $603,687
- Currently have 17 active contracts, 14 completed contracts, 31 total contracts

Mountain Creek Lake
The Mountain Creek Lake Watershed project was initiated September 1, 2002. It is approximately 18,500 acres in size with approximately 7,500 acres of brush. It is a sub-divided sub-basin of the Upper Colorado Watershed. Cost share funding in the amount of $95,542 has been made available in the Mountain Creek Watershed.

- 2,034 acres were under contract to be treated at a cost of $88,728
- 1,440 acres had been treated at a cost to the State of $70,033

- Currently have 4 active contracts, 6 completed contracts, 10 total contracts

Champion Creek Lake

The Champion Creek Lake Watershed project was initiated September 1, 2002. It is approximately 115,737 acres in size with 40,347 acres of brush. It is a sub-basin of the Upper Colorado Watershed. Cost share funding in the amount of $906,932 has been made available in the Champion Creek Watershed.

- 17,481 acres were under contract to be treated at a cost of $865,202
- 10,786 acres had been treated at a cost to the State of $504,606
- Currently have 55 active contracts, 21 completed contracts, 76 total contracts

Pecos/Upper Colorado (Salt Cedar)

The Pecos/Upper Colorado Salt Cedar Project was initiated September 1, 2003. It is a match project to utilize federal EQIP dollars. Cost share funding in the amount of $410,710 has been made available in the Pecos/Upper Colorado Watersheds.

- 6,354 acres were under contract to be treated at a cost of $298,477
- 3,468 acres had been treated at a cost to the State of $180,678
- Currently have 22 active contracts, 40 completed contracts, 62 total contracts

PROJECT STATUS TO DATE

Project	Total Allocation	Acres Under Contract	Treated Acres	Avg. Cost Per Ac.	Expected Water Yield
North Concho River	$ 13,254,024.00	351,689	207,537	$ 41.00	157,728
Twin Buttes	$ 9,765,989.00	207,058	115,518	$ 43.00	108,586
Pedernales	$ 4,001,199.00	58,845	41,524	$ 64.00	212,187
Lake Ballinger	$ 484,886.00	10,235	4,559	$ 45.00	6,063
Oak Creek Lake	$ 1,095,765.00	15,214	10,752	$ 47.00	12,149
Champion Creek	$ 906,932.00	14,338	7,241	$ 45.00	5,503
Pecos/ Upper Colorado	$ 410,710.00	6,220	-		-
Mountain Creek	$ 95,532.00	2,034	1,414	$ 49.00	1,230

WATER STUDIES ON BRUSH CONTROL IN TEXAS

(State Brush Control Plan, TSSWCB, 2002)

Very few field studies in Texas have attempted to measure water yield enhancement by brush control at a catchment scale, however, ongoing projects in certain areas are showing positive results. Research on the Texas A&M Agricultural Research Station at Sonora shows that there is a very significant water yield potential associated with converting brush to grassland on a site with these characteristics (over 18 inches of rain/year, shallow soils with high infiltration rates overlying fractured limestone, dense juniper oak woodland cleared and replaced with shortgrass and midgrass species). These data were collected over a 10-year period from seven 10-acre catchments and supplemented with data on water movement through the soil using 45 x 45 x 30 inch weighing lysimeters.

Similar estimates of vegetation effects on water yield were made for the Cusenbary Draw Watershed, which includes part of the Texas Agriculture Experiment Station at Sonora within the watershed. The Cusenbary Draw Watershed estimates were derived independently of the field data estimates and were obtained using the Simulation of Production and Utilization of Rangelands (SPUR-91) model (Redeker et al. 1998). The SPUR-91 model has been validated to be an effective tool for estimating water yield and livestock carrying capacity on range sites throughout Texas (Carlson et al. 1995, Carlson and Thurow 1996). Aerial photographs were used to form a composite photograph of the watershed for both 1955 and 1990. The amount of woody cover in 1955 and 1990 and the rate of change between these dates was calculated using image analysis technologies on each of the five range sites delineated within the watershed (Redeker 1998). Literature and expert opinion were used to validate and refine the aerial photo composition estimates of woody (juniper, oak, mesquite) and herbaceous (bunchgrass, shortgrass, forbs) cover.

Both the field study and modeling investigations conclude that water yield increases exponentially as brush cover declines in the treated area (i.e., very little change in water yield from dense brush canopy cover to about 15% brush canopy cover and a rapid rise in water yield from 15% to 0% brush canopy cover). These findings imply that it is necessary to remove most of the brush in the treatment area to maximize water yield potential. This conclusion is corroborated by numerous anecdotal observations by ranchers and agency personnel with brush control experience in the region (cf. Kelton 1975, Willard et al. 1993). The exponential pattern of water yield increase relative to a decrease in brush cover has also been postulated for the Colorado River Basin (Hibbert 1983). The exponential relationship is believed to occur because the intraspecific competition among trees (Ansley et al. 1998) and interspecific competition with herbaceous vegetation results in little increase in water yield until the tree density becomes sparse. In other words, trees have a capability for luxuriant water use. If a stand is thinned the remaining trees will in a short time expand their root systems to use the extra water. Only when the thinning reduces tree cover to less than about 15% in a specific area is there a potential for significant yields of water. It should be noted that the brush canopy reflects the average density over the treated area, not necessarily the total number of plants in a watershed. For example, 25% of a watershed could be left untreated to allow for wildlife habitat, while the remaining 75% could be treated to 0% canopy cover. Then the 75% of the watershed that is treated could have a significant improvement in water yield, while the untreated portion would have no change from the present condition.

In 1985, TSSWCB and the Texas Water Development Board developed a list of water supply reservoirs where brush control could possibly enhance water supplies (Appendix 4). The following criteria were used:

1. Where surface reservoirs have vacant storage and can accept an increase in surface flow.
2. Watershed of approximately 500 square miles or less and boundary conditions are minimized.
3. A record of historical baseflow.
4. Where brush clearance would progress upstream from a reservoir site.
5. Where zero or minimal stream diversions occur.
6. Where annual runoff averages more than 0.5 inches and less than 5.0 inches.
7. Where rainfall is between 15 and 36 inches per year.
8. Where trees can remain along streams and channelization is not necessary.
9. Where state and federal regulations regarding wetland and pollution will not be violated.
10. Where brush and/or phreatophyte infestation exceeds twenty percent.
11. Where dissolution of near-surface salts is minimal and such areas can be identified.
12. Where municipalities have water supply problems.
13. Where the best historical data is available such as, stream flow and ground - water level.
14. Where groundwater recharge and storage can be increased.
15. Where hydrogeological conditions are favorable.
16. Where the ratio of water use by brush/phreatophytes covered areas converted to grasslands or other vegetation is favorable. Also, where the ratio of the soil moisture with and without the brush is favorable to induce ground water recharge.

In 2001, TSSWCB evaluated additional watersheds using the criteria listed above. This evaluation resulted in the listing of the Lake Belton watershed and the Canyon Lake watershed.

Most areas considered under the preliminary criteria outlined above can expect an increase in surface water runoff. With respect to ground water augmentation, however, the hydrogeological setting plays an important role in the selection. For example, streams should traverse the recharge outcrops of aquifer; and if faulting exists, this would be even better. Along the breaks of the Edwards Plateau, brush control would perhaps result in increased spring flows.

ALTERNATIVE BRUSH CONTROL METHOD FOR SALTCEDAR

The following are excerpts taken from materials provided in the public hearing on July 14, 2004 by C. Jack DeLoach, Ph.D. of the U.S. Department of Agriculture, Agricultural Research Service (ARS) of Temple, Texas.

Invasion and damage by Saltcedar. The invasion of river bottoms and lakeshores of the western United States by exotic, invasive Saltcedars (Tamarix spp.), deciduous shrubs or small

trees, from the Old World, has produced one of the worst ecological disasters in the recorded history of that region. Saltcedars rapidly invaded after the 1920s and today occupy over 2,000,000 acres of highly valuable land along streams and lakeshores from the central Great Plains to the Pacific and from Montana into northern Mexico. They often completely displace native plant communities, degrade wildlife habitat, and contribute to the population decline of many species of birds, fishes, mammals and reptiles, including some 40 threatened or endangered species. They increase wildfires and soil salinity, lower water tables and reduce recreational usage of parks and natural areas. Saltcedar thickets typically use 4 to 5 acre feet of water per year that in the present drought severely reduces water available for agricultural irrigation and municipal use. Saltcedar contributes to default of water agreements between states and between the United States and Mexico, and damage natural area reserves bordering the Rio Grande.

Conventional controls. Saltcedars are difficult to control by mechanical methods, fire or many herbicides because of their ability to resprout from underground buds and to reinvade from windblown seeds. Recently, "arsenal" (imazapyr) used as an aerial spray and "garlon" (triclopyr) as a cut-stump treatment, are providing good control. However, both are expensive and arsenal also kills many native plants. Aerial applications of herbicides are inappropriate in natural areas of mixed vegetation where the objective is to kill the invading weed and preserve the beneficial and native plants.

Research Progress. Surveys specifically to find biological control agents, sponsored by ARS during the 1970s in Israel, Turkey, Iran, India, and Pakistan, brought the total number of apparently specific and damaging insect natural enemies to more than 300 species. Research began by ARS at Temple, Texas in 1986. Some 20 candidate biological control insects are under investigation overseas and 7 species are quarantined at Temple and Albany, California.

The first biological control agent for Saltcedar, the leaf-feeding beetle, *Diorhabda elongata*, was initially released in secure field cages in 1999 at 10 sites in 6 states (California, Colorado, Nevada, Texas, Utah and Wyoming). Cages were removed at these sites in 2001. The original few hundred individuals released have produced millions of offspring. Additional release sites were added in Montana, Oregon and New Mexico in 2003. The beetle is already impacting Saltcedar at release sites and is spreading to other locations.

Monitoring. Two years of baseline data now has been compiled from the various release sites on the beetle populations, dispersal, mortality factors, and effects on saltcedar and non-target plants; on the present vegetation density and composition; and on wildlife populations. Also, differences in insect species, life stages, and abundance between saltcedar and native riparian trees and shrubs, is being measured. The monitoring is by far the most time-consuming and expensive part of the project, but it is essential to understanding the effects of control on native ecosystems. Previous and continuing research on remote sensing promises a good and less expensive method of monitoring the degree and extent of control and of the recovery of native riparian plant communities following control.

Expectations. We expect biological control to gradually (over a period of 3 to 4 years) and permanently reduce the abundance of Saltcedar to below the level of economic or environmental

damage, but not to eradicate it. In this situation, both Saltcedar and the beetles would remain at fluctuating low population levels, the beetles always would be present to control re-growth or reinvasion of windblown or waterborne seeds, and 100% control is not needed. This is the situation obtained in all other successful biological control of weeds projects.

Under these conditions, we expect the native plant communities to reestablish naturally in most areas where depth to water table and soil salinity are not too great. This should improve wildlife habitat and allow the recovery of many species of birds and fish and some mammals and reptiles, including several threatened and endangered species of plants and animals. Successful control of Saltcedar also is expected to substantially increase the amount and quality of water available for irrigated agriculture and municipal use and to help fulfill the water rights agreements between states and between the United States and Mexico. Control also is expected to increase recreational usage of parks and wildland areas, to reduce wildfires, and to allow the gradual reduction of salinity levels of surface soils in presently infested areas.

ECONOMIC COSTS AND POTENTIAL FUNDING SOURCES

(Brush Control and Saltcedar Management in Texas, July 2004)

Economic costs for brush control have been estimated for Texas major western watersheds by the TSSWCB and TAES in the 2000 and 2003 studies cited previously. Costs of brush control practices (treatments) vary widely. Factors responsible for this variation in cost are:

- type of brush targeted for control
- density/structure of the brush
- soils/topography of the area where the brush is growing
- the size of the area being treated
- the control method chosen
- equipment ownership of operating (fuel) costs
- materials cost if chemical control is the chosen method.

Public Benefit

Public benefit in the form of additional water depends on landowner participation and proper implementation and maintenance of the appropriate brush control practices. It is also important to understand that rancher participation primarily depends on the rancher's expected economic return from participating. With this in mind, the economic analyses have been predicated on the objective of limiting rancher costs associated with participation in the program to no more than the benefits that would be expected to accrue to the rancher as a result of participation. It is assumed that the difference between the total cost of the brush control practices and the value of the practice to the participating landowner will have to be contributed by the state.

Costs of Brush Control

Costs will be incurred for brush control practices including initial and follow-up treatments required to reduce the current canopies of all categories of brush types and densities to 3-8 percent and maintain them at the reduced level for at least 10 years. These practices, and therefore their costs, vary across watersheds due to differences in terrain, soils, amount and distribution of cropland in close proximity to the rangeland, and other factors. Some treatments will be required in the first year to initiate the program while others will not be needed until later

years. Present values (2000) of total per acre control costs range from $33.75 for moderate mesquite that can be initially controlled with herbicide treatments to $159.45 for heavy mesquite that cannot be controlled with herbicide but must be initially controlled with mechanical tree bulldozing or rootplowing due to proximity to broadleaf crops such as cotton or melons.

The control costs for Cedar (Ashe Juniper) and Mesquite by most commonly recommended control method (treatment) and density category are summarized below. The range in the costs are due to differences in time (2000 - 2004), location (Southern Edwards Plateau to Rolling Plains Land Resource Regions) and size of treated area. Due to differences in local factors, not all practices are suited for use in all locations.

Treatment Method	Cost-$/acre
Heavy Cedar (30% plus canopy cover)	
Tree Doze, Stack & Burn	150 - 180
Tree Shear, Stack & Burn	85 - 145
2-Way Chain and Burn	32 - 90
Moderate Cedar (20-30% canopy cover)	
Tree Doze, Stack & Burn	95 - 130
Tree Shear	35 - 75
Cedar Follow-up Practices (3-7 yrs. post treatment)	
Prescribed fire	6 - 10
Individual Plant Treatment	12 - 18
Heavy Mesquite (30% plus canopy cover)	
Aerial Applied Herbicide	25 - 35
Doze, Rootplow, Rake, Stack & Burn	150 - 180
Moderate Mesquite (20-30% canopy cover)	
Aerial Applied or IPT Herbicide	25 - 35
Doze or Grub, Stack & Burn	60 - 130
Mesquite Follow-up Practices (3-7 yrs. post treatment)	
Individual Plant Treatment	12 - 20

State Cost Share

The estimated state cost share is estimated as the difference between the present value of the total cost per acre of the control program and the present value of the rancher participation. The state's cost share ranges from a low of $21.70 for control of moderate mesquite in the Wichita Watershed to $138.85 for control of heavy cedar in the Edwards Aquifer Watershed.

Costs of Added Water

The total cost of added water is determined by dividing the total state costs share if all eligible

acreage were enrolled in the program by the total added water estimate to result from the brush control program over the assumed 10-year life of the program. The 2000 feasibility study of 8 Texas watersheds indicated an average cost to the State ranging from $16.41 to $111.37 per acre-foot of water released over a 10-year period. A further analysis of the Edwards Aquifer sub-basins reported costs ranging from $26.68 per acre-foot on the Medina sub-basin to $97.51 per acre-foot on the Upper Nueces sub-basin.

Sources and Methods of Funding Brush Control Practices on Private Lands

As noted in the discussion of costs, brush control practices are expensive. In fact, most landowners cannot economically justify brush control practices on their private lands without significant assistance in the form of cost-share incentives. To date, federal and/or state governments have been the primary source of funds for providing landowners with cost-share incentives for brush control on private lands. The expenditure of public funds for practices applied to private lands is justified in that brush control on private lands produces benefits to society beyond those accruing to the landowner in the form of improved watershed function, improved biodiversity and wildlife habitat, etc.

COST-SHARE PROGRAM

(State Brush Control Plan, 2002)

General Criteria

Subchapter E, Section 203.151 of the Agriculture Code created a cost-sharing program to be administered under Chapter 203 and rules adopted by the Board. Section 203.152 of the law created the brush control fund, which is a special fund in the State treasury to be used to provide the State's share of the cost of brush control projects. Sections 203.156, 203.157, and 203.158 discuss individual applications for cost-share assistance, and Section 203.160 set out the requirements for contracts between soil and water conservation districts and individual landowners. Section 203.161 provides for the administration of cost-share funds.

The Texas State Soil and Water Conservation Board adopted rules to administer the brush control cost-share program (31 TAC §§ 517.22 - 517.30) with the following program characteristics.

1. Not more than 70 percent of the total cost of a single brush control project may be made available as the state's share in cost sharing. (Section 203.154 (a) Texas Agriculture Code)

2. Funds will be allocated from the State Brush Control Fund

3. Requests for allocations will be part of brush control project proposals submitted by Brush control area working groups. This working group includes all SWCDs in a project area plus other interested parties.

4. Approval of allocations. The State board shall consider, approve, reject, or adjust funding requests based on priority of projects (Section 5.4), and amount of available funding. Only districts for which the State Board has approved a project are eligible for cost-share funds.

Cost-share Agreement

Soil and water conservation districts may enter into cost-share agreements with individual land owners. Cost-share agreements must be based on an approved brush control plan developed by the landowners with assistance provided through the conservation district. Only those costs directly associated with removal of brush, as specified in the watershed study for that watershed, are eligible for cost-share assistance.

Brush Control Methods
The Soil and Water Conservation Board is directed to approve all methods of brush control used under this program. The Board may approve methods of controlling brush based on a finding that the method:

1. has proven effective and efficient for controlling brush
2. is cost efficient
3. has beneficial impact on wildlife habitat
4. will maintain topsoil to prevent erosion or siltation of rivers or streams, and
5. allows for re-vegetation of the area with plants that are beneficial to livestock and wildlife after brush is removed.

The Board will approve brush control methods for each brush control project based upon information from the watershed study along with other data or information the Board deems relevant. Approved methods will be transmitted to the appropriate conservation districts when funding allocations are approved.

Maintenance of Brush Management
Cost-share agreements must contain a commitment on the part of the landowner to maintain areas for which cost-share funding for brush control is received for a period of ten years after the initial brush control is accomplished. Maintenance includes periodically re-treating the area with appropriate brush control methods to prevent brush reinfestation over the duration of the contract period. Maintenance treatments will be scheduled as needed according to specifications in the *Field Office Technical Guide*. Cost-share rates will be based on the present value of the cost, including maintenance cost over the ten-year period.

Certification of Practice Implementation
Upon completion of brush control on any identifiable unit of land, the district may certify to the Board that the practice has been implemented in accordance with specifications on that portion of the planned area.

Cost-share Payments
Based upon certification by the conservation district that brush control has been implemented according to specifications on all or any identifiable unit of land in a brush control plan, the Board may process a request for payment of cost-share funds and cause payment to be made directly to the landowner.

During the past few years, three important programs have provided cost-share incentives to Texas landowners for implementing brush control practices: the Texas State Soil and Water

Conservation Board's Cost-share Assistance for Brush Control; USDA-NRCS conservation program, e.g., Environmental Quality Incentive Program (EQIP); and the Leon River Restoration Project (LRRP). (Brush Control and Saltcedar Management in Texas, July 2004)

TSSWCB

To date, the Cost-share Assistance for Brush Control program has been implemented in selected areas in the Upper Colorado River Drainage Basin, primarily the North Concho Watershed and in a few selected sub-watersheds of the Pedernales River. The program has provided funds only for initial brush control practices under a 5-year agreement during which the landowner agrees to use follow-up practices to stem brush re-establishment provided that cost-share funding is available.

NRCS-EQIP

This program has recently experienced significant increases in the amounts of funding available but, because it targets a wide array of natural resource conservation and environmental quality issues, it has resulted in limited funding of cost-share for brush control to date. In the future, however, it should be a significant source of funding of cost-share incentives for brush control in Texas.

LRRP

The Leon River Restoration Project (LRRP) has been successful in enrolling landowners as participants in rangeland/habitat restoration and maintenance. Although it has been a relatively modest project to date involving landowners in only Hamilton and Coryell counties, it has established some important precedents for future brush control cost-share incentive programs. There are several reasons for the success of the project. First, it provides an attractive incentive in the form of an 85% cost-share (leaving 15% for the landowner) paid on all initial restoration work performed (mostly Juniper clearing and a modest amount of mulching and reseeding of herbaceous species). This compares to 50% cost-share for most EQIP programs and approximately 70% for TSSWCB programs. The LRRP agreement also provides for a refund of the 15% landowner cost, less cost associated with implementing a prescribed fire on the treated areas to arrest the re-establishment of juniper, at the end of the 5-year contract if the landowner has complied with the terms of the agreement.

The second major key to the success of the LRRP in enrolling landowner participants is the use of Texas Parks and Wildlife Department (TPWD) conservation plans as the mechanism for determining the appropriate restoration practices. This is important because TPWD is mandated by state law to provide confidentiality to landowners regarding any features of their property including probable habitat for endangered or threatened species. The LRRP program is also unique in that it has succeeded in garnering funding for the cost-share incentives from a variety of sources and agencies and focusing it on the specific program objectives. In addition to securing funding from a variety of sources, the LRRP project has encompassed cooperation and in-kind services from a wide variety of federal and state agencies, environmental NGOs, and producer organizations.

Conclusion

For decades, scientists have conducted research related to brush control. The original goal of

implementing brush management was to increase the productivity and health of rangelands to benefit the rancher. Only more recently has the opportunity to gain runoff or recharge to aquifers from brush control become a serious interest. Thus, relatively few totally conclusive studies have quantified the water yield attributable to brush control.

However, simulation models performed on watersheds in the Upper Colorado River Basin have indicated watershed yields from the areas prior to brush encroachment. In other words, the historical watershed production data agrees very closely with the simulation model estimates. In several instances, the present watershed yields are 20% to 30% of pre-brush encroachment yields.

From those studies that have shown a water increase, some general observations are possible. Those studies have also provided improvements that allow application of hydrologic models for simulations. Basic conclusions are as follows:

- Studies of brush control suggest that mesquite, juniper and salt cedar may be using as much as 10 million acre-feet of water per year in Texas.
- Water yield from brush control is highly dependant upon type and magnitude of brush infestation (thicker brush-greater water yield potential), weather patterns (higher rainfall greater potential), vegetation replacement (grasses will consume some of the water), proximity to a water course (the closer the more that will enter the stream), and follow-up maintenance (re-infestation can happen in a few short years deleting any gains).
- Within a watershed, there are large water and economic advantages to selection of specific sub-basins.
- Typically, success of brush control to provide water yield is related to an average rainfall of 17 inches or more.
- An exception to the 17+ average annual rainfall is brush growing in the riparian zone with the roots in the alluvium, where control of vegetation does improve stream flow. This is especially relevant to salt cedar.
- Large rainfall events can be expected to cause runoff and increase stream flow in an area with or without brush control in place.
- There are state and federal agencies, River Authorities and other sources of cost share dollars to assist a rancher in brush control costs since the benefits to the rancher are not sufficient to offset the cost.

RECOMMENDATIONS

The Legislature should continue to fund the Texas State Soil and Water Conservation Board's Texas Brush Control Program to continue the current projects of Twin Buttes, Oak Creek, Lake Ballinger, and Pedernales project areas, and to complete the North Concho River Pilot Project. Approximately 15% of the funding will be used to leverage federal Environmental Quality Incentives Program dollars from the United States Department of Agriculture - Natural Resource Conservation Service on the Pecos River Salt Cedar Project.

In the event that brush control activities begin in new project areas using current appropriations, the percent of ongoing projects that are completed will be reduced. Therefore the Committee recommends approval of new projects be contingent upon additional funding for the projects.

The Legislature should allow for any unexpended balances to be extended into the 2008-2009 biennium to allow for the implementation of sound conservation practices such as grazing deferment.

The Legislature should provide sufficient funding to allow for maintenance treatments of previously treated rangelands to ensure a continued successful brush control program.

The Committee urges all state agencies involved in water conservation to cooperate and coordinate any future brush control projects.

APPENDIX FOR BRUSH CONTROL

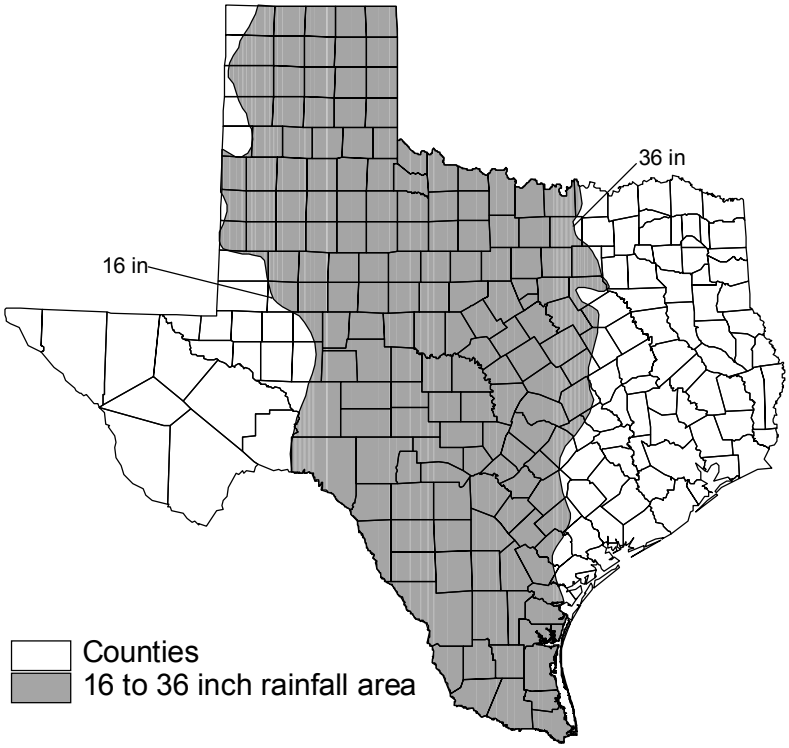
Appendix 1

Acres of brush for different species and density ranges in Texas from USDA-NRCS 1982 and 1987 brush surveys. (compiled from TSSWCB, 1991)

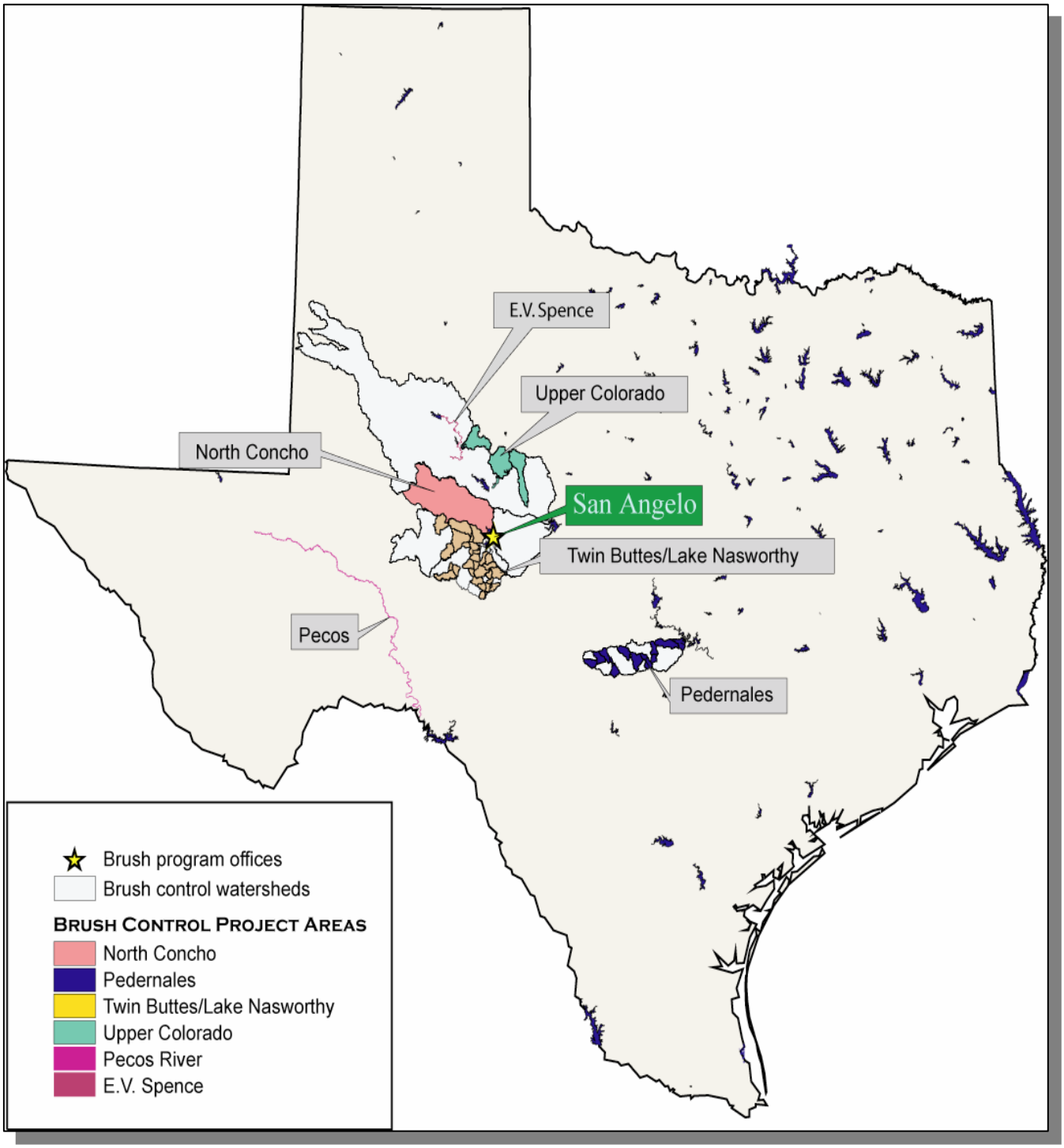
	Light Canopy 1-10% Cover		Moderate Canopy 11-30% Cover		Heavy Canopy >30% Cover	
Species	*1982*	*1987*	*1982*	*1987*	*1982*	*1987*
Agarito	8,370,500	5,336,100	303,500	272,700	29,500	11,600
Ashe juniper	4,398,300	2,875,300	2,000,800	1,949,300	1,214,700	1,904,400
Baccharis	288,800	122,000	44,200	25,700	7,000	9,000
Blackbrush	3,780,100	2,167,200	2,068,400	2,445,000	602,200	623,000
Blackjack oak	765,700	401,700	365,700	164,200	52,500	50,500
Broom snakeweed	5,560,300	2,607,700	1,987,700	2,512,800	270,600	967,200
Catclaw acacia	7,045,400	3,554,200	611,600	335,700	13,700	1,700
Cenizo	258,300	107,300	12,500	21,000	0	0
Chinese Tallow[1]						507,400
Condalias/lotebush	9,168,400	6,991,700	551,100	594,000	88,300	23,100
Creosotebush	4,830,600	4,212,500	3,027,000	2,324,300	246,200	134,800
Eastern red cedar	633,800	374,700	166,900	101,000	97,000	27,900
Elbowbush	331,600	174,800	69,700	60,800	13,600	1,600
Elms	1,939,800	996,000	671,400	553,500	315,600	341,100
Granjeno	4,939,400	3,374,100	486,000	735,000	86,800	1,200
Guajillo	1,975,400	1,162,300	981,200	1,081,600	239,600	401,200
Huisache	745,700	589,900	194,000	145,500	63,500	46,600
Live oak	6,067,500	4,321,000	3,401,500	4,141,600	1,112,500	1,076,100
Macartney rose	176,100	70,300	56,900	146,000	21,900	0
Mesquite	32,162,700	24,936,500	14,690,900	16,670,800	4,262,900	5,610,000
Post oak	2,027,200	1,277,500	1,642,300	1,524,900	1,642,400	1,536,200
Prickly pear	28,688,500	19,642,000	1,686,100	2,176,200	170,900	189,200
Redberry juniper	6,900,600	6,133,600	2,532,400	2,707,800	414,700	558,300
Sand sagebrush	2,764,300	2,494,600	1,032,700	1,168,800	239,800	292,700
Sand shinoak	301,600	60,100	350,200	257,200	362,000	600,900
Tarbush	2,301,600	2,083,300	791,300	594,900	50,300	85,500
Tasajillo	4,475,800	3,092,000	271,500	283,100	16,600	0
Texas persimmon	5,833,600	3,315,900	850,600	767,600	124,200	54,400
Twisted acacia	1,061,500	748,000	156,800	181,600	0	0
Whitebrush	2,593,500	1,663,000	605,800	763,000	184,400	318,800
Yaupon	831,000	515,900	568,700	654,100	322,600	205,300
Yucca	13,353,800	8,279,600	601,300	499,300	12,600	0

1. Chinese tallow infestation for 1990 from a 1991 survey by NRCS. Infestation by the year 2000 was estimated at over 900,000 acres. Percent canopy cover was not provided.

Appendix 2


36 in
16 in
Counties
16 to 36 inch rainfall area

Appendix 3


E.V. Spence
Upper Colorado
North Concho
San Angelo
Twin Buttes/Lake Nasworthy
Pecos
Pedernales
Brush program offices
Brush control watersheds
BRUSH CONTROL PROJECT AREAS
North Concho
Pedernales
Twin Buttes/Lake Nasworthy
Upper Colorado
Pecos River
E.V. Spence

Appendix 4

Water supply reservoirs where brush control could enhance supplies.

County	**Reservoir**	Water Course	**User**	**Comments**
Archer	Lake Kickapoo	N. Fork Little Wichita	Wichita Falls	Arrowhead Study - 2002
Archer	Lake Arrowhead	Little Wichita River	Wichita Falls	Arrowhead Study - 2002
Bandera	Lake Medina	Medina River	Medina Irr. Co.	Edwards Study - 2000
Baylor	Millers Creek	Millers Creek	N. Central Texas MWA	Not more than 20% canopy
Bell	Lake Belton	Leon River	Bell Co. Water Control & Improvement District	
Blanco	Blanco River	Blanco River	Blanco	
Blanco	Johnson City Lake	Pedernales River	Johnson City	Pedernales Study - 2000
Bosque	Bosque River	Bosque River	Meridian	
Bosque	Bosque River	Bosque River	Clifton	Proposed reservoir
Brown	Lake Brownwood	Pecan Bayou	Brownwood WCID	Brownwood Study - 2002
Burnet	Lake Georgetown	N. Fork San Gabriel	Brazos RA	
Callahan	Lake Baird	Mexia Creek	Baird	
Callahan	Lake Clyde	N. Prong Pecan Bayou	Clyde	Brownwood Study - 2002
Clay	Arrowhead	Little Wichita River	Wichita Falls	Arrowhead Study - 2002
Coleman	Lake Coleman	Jim Ned Creek	Coleman	Brownwood Study - 2002
Comal	Canyon Lake	Guadalupe	Guadalupe-Blanco R.A.	
Eastland	Lake Cisco	Sandy Creek	Cisco	
Erath	Bailey's Lake	Kickapoo Creek	Lipan	
Erath	Thurber Lake	Gibson Creek	Thurber	Palo Pinto Study - 2002
Falls	Lake Marlin	Big Sandy Creek	Marlin	
Falls	Lake Rosebud	Pond Creek tributary	Rosebud	
Goliad	Coleto Creek	Coleto Creek	Guadalupe-Blanco R.A.	Power cooling lake
Hamilton	Proctor	Leon River	Hamilton	
Haskell	Lake Stamford	Paint Creek	Stamford	
Jack	Lake Jacksboro	Lost Creek	Jacksboro	
Jim Wells	Lake Alice	Chiltipin Creek	Alice	
Johnson	Lake Pat Cleburne	Nolan River	Cleburne	
Jones	Ft. Phantom Hill	Elm Creek	Abilene	Ft. Phantom Hill Study - 2002
Kimble	Lake Junction	Llano River	Junction	
Kendall	Boerne Lake	Cibolo Creek	Boerne	
Llano	Llano/City Lake	Llano River	Llano	
Mills	City Lake	Colorado River	Goldthwaite	
Mitchell	Lake Colorado City	Morgan Creek	Colorado City	Upper Colorado Study - 2000
Montague	Lake Nocona	Farmers Creek	Nocona	
Montague	Amon Carter	Sandy Creek	Bowie	
Nolan	Lake Trammel	Sweetwater Creek	Sweetwater	
Nolan	Lake Sweetwater	Bitter Creek	Sweetwater	
Palo Pinto	Palo Pinto	Palo Pinto Creek	Palo Pinto MWD	Palo Pinto Study - 2002
Palo Pinto	Lake Mingus	Gibson Creek	Mingus	Palo Pinto Study - 2002
Palo Pinto	Tucker Lake	Russell Creek	Strawn	Palo Pinto Study - 2002
Parker	Lake Weatherford	Clear Fork Trinity	Weatherford	

Real	Camp Wood Creek	Camp Wood Creek	Camp Wood	Nueces Study - 2000
Runnels	Lake Winters	Elm Creek	Winters	Upper Colorado Study - 2000
Runnels	Lake Ballinger	Valley Creek	Ballinger	Upper Colorado Study - 2000
Shackelford	McCarty Lake	Salt Prong Hubbard Creek	Albany	
Somerville	Paluxy River	Paluxy River		
Stephens	Lake Daniel	Gonzales creek	Breckenridge	Base flow decline
Stephens	Hubbard Creek	Hubbard Creek	W. Central Texas MWD	
Taylor	Lake Abilene	Elm Creek	Abilene	Ft. Phantom Hill Study - 2002
Taylor	Lake Kirby	Cedar Creek	Abilene	Ft. Phantom Hill Study - 2002
Taylor	Lake Lylte	Lylte Creek	Abilene	Ft. Phantom Hill Study - 2002
Uvalde	Leona River	Leona River		Frio Study - 2000
Val Verde	San Felipe	San Felipe Creek	Del Rio	San Felipe springs
Victoria	Coleto Creek	Coleto Creek	GBRA	Cooling reservoir
Williamson	Lake Georgetown	N. Fork san Gabriel	Brazos RA	
Young	Lake Olney	Mesquite Creek	Olney	Arrowhead Study - 2002
Young	Lake Graham	Salt Creek	Graham	
Young	Lake Whiskey Creek	Whiskey Creek	Newcastle	
Zavala	Upper Nueces	Nueces River	Zavala & Dimmit Co. WID No. 1	Nueces Study - 2000

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TEXAS ANIMAL HEALTH COMMISSION

On July 14, 2004, the Committee on Agriculture and Livestock held a public hearing in Austin, Texas. On the agenda was invited testimony from Bob Hillman DVM, the Executive Director of the Texas Animal Health Commission. The following is the written testimony of Dr. Hillman.

WRITTEN TESTIMONY
by
Bob Hillman, DVM
Executive Director
Texas Animal Health Commission

Thank you Mr. Chairman, my name is Dr. Bob Hillman, Executive Director of the Texas Animal Health Commission. I appreciate the opportunity to provide testimony relative to the Texas Animal Health Commission to the House Agriculture Committee.

In this testimony I will provide a brief overview of the major functions performed by the Texas Animal Health Commission and describe the evolution in animal health activities that has occurred over the past several years. Dr. Max Coats, our Deputy Director for Animal Health Programs will provide a report on the Fowl Registration Program. I will be providing information in five major areas.

1. Animal Disease Control and Eradication Programs
2. Animal Health Emergency Management
3. Animal ID
4. Personnel and Financial Issues
5. Potential Legislative Changes

1. ANIMAL DISEASE CONTROL AND ERADICATION PROGRAMS

Brucellosis

For many years, control and eradication of bovine brucellosis was the primary activity to engage the time and expertise of TAHC personnel. Sixteen years ago (1988) Texas had 1,433 accumulated brucellosis infected herds and employed 294 staff**.** Only ten years ago the state had 383 accumulated brucellosis infected herds and employed 251 staff. In fiscal year 2004, we have identified two cattle herds that were infected with bovine brucellosis. While the disease is still a significant disease of concern to Texas, the time and effort spent to address this disease is significantly reduced from just a few years ago. However, Texas must continue efforts to eradicate brucellosis until the job is completed (Texas is one of only two states not classified as Free of brucellosis) and then conduct brucellosis surveillance activities for five to ten years after the state is classified as Free.

TAHC has experienced a reduction in staff from over 300 to less than 200, at least in part, as result of the success in reducing the incidence of brucellosis in the state. While this reduction was justifiable, based on brucellosis activity, the reduction has impacted the ability to TAHC to effectively perform all the other duties it is called upon to perform.

Tuberculosis

The national effort to control and eradicate tuberculosis from the United States began early in the 20th century. By the early 1980s the number of tuberculosis infected herds discovered in the United States had dropped to an all time low. It appeared that Texas and the rest of the country were on the verge of eradicating this serious cattle and human disease. Unfortunately, because of the low level of disease, surveillance activities were reduced, while at the same time we began to import increasing numbers of tuberculosis infected or exposed cattle from Mexico. As result, there was a significant increase in the prevalence of tuberculosis in a number of states, including Texas. Texas discovered a number of infected herds in the El Paso milkshed and found infection in other areas of the state. Subsequently, increased surveillance, testing and tracing activities controlled the disease and in November of 2000, Texas achieved Tuberculosis Accredited Free Status, except for El Paso milkshed, which was established as a Modified Accredited Advanced area.

Accredited Free Status did not last long. In 2001, two tuberculosis infected cattle herds were identified in the state (Fayette County, 7-01; Reeves County 12-01) and Texas lost its accredited free status in 2002. Since that time two additional tuberculosis infected herds have been discovered in the state. We are now working to find any remaining tuberculosis infected cattle herds. This effort includes improved slaughter surveillance, testing of breeding cattle exported from the state, increased whole herd testing (dairy and seedstock herds), and increased efforts to reduce exposure from Mexican origin cattle (feeder cattle and rodeo/roping cattle). Since November 1, 2003 we have tested approximately 300,000 cattle in 848 dairy or beef purebred/seedstock herds. Our objective is to test all dairies in the state and approximately 2,400 beef purebred/seedstock herds by the end of the year.

Currently, Texas is one of 4 states not classified as Tuberculosis Accredited Free (California, New Mexico and Michigan).

TAHC activities to address the tuberculosis problem will continue to increase over the next few years in order to regain Accredited Free Status. Additionally, USDA is preparing to implement a revised Uniform Methods and Rules (program standards) for Cattle Tuberculosis and new regulations to address the disease will be published within the next few months. These standards and rules will require additional surveillance and disease control efforts on our part. Texas must go two years after depopulation or release of quarantine of the last infected herd in order to regain Tuberculosis Accredited Free Status.

Swine Diseases

Swine Brucellosis and Swine Pseudorabies (PRV) are the primary diseases of concern and of economic consequences to Texas swine producers. Texas is not free of either of these diseases. Blood for testing for both diseases is collected from sows and boars at livestock markets and slaughter facilities. Testing is performed by TAHC laboratories.

Both swine brucellosis and PRV are endemic in feral swine, which serves as a reservoir for both of these diseases. Sporadic spill-over to commercial swine occurs and will continue to occur in the state.

USDA is working with states and the commercial swine industry to develop and implement a new strategy to reduce the potential for spill-over of the disease from feral swine to commercial swine. This will entail identification of all commercial swine facilities in the state, performance of a risk analysis for potential PRV infection, implementation of risk mitigation strategies to reduce potential for disease exposure and an ongoing surveillance program.

Equine Diseases

Equine Infectious Anemia (EIA) is the primary disease of concern for horses. EIA is a potentially fatal disease of horses and other equine. The disease is spread from horse to horse primarily by horse flies and deer flies. No vaccine or treatment is available. Current regulations require that equine which are commingled with other equine have a negative EIA test within the past 12 months. EIA positive equine must be isolated for life or be destroyed. The infection rate in Texas in 2003 was 0.03 percent, with 73 of 248,903 horses testing positive. USDA is currently developing a national EIA program that is supported by a number of states. The new program will impact our laboratory processes and interstate movement of equine.

Another significant disease of horses and other equine in Texas is West Nile Virus (WNV). This is a bird, animal and human disease. It is an encephalitic disease and can cause death in a significant number of infected horses. An effective vaccine is available for use in horses.

Since WNV is a human disease, the Zoonotic Disease Branch of the Texas Department of Health is the lead agency in dealing with this disease.

Texas, along with New Mexico and Colorado, is currently experiencing an outbreak of Vesicular Stomatitis (VS). To date, eleven cases of the disease have been diagnosed in Texas and all except one case included horses.

Transmissible Spongiform Encephalopathies (TSE)

This category of diseases includes three diseases in animals: **Scrapie, Bovine Spongiform Encephalopathy (BSE or Mad Cow Disease) and Chronic Wasting Disease.** All are fatal, chronic, degenerative diseases of the central nervous system.

Scrapie

Scrapie is a fatal, degenerative disease of sheep and goats. Texas is a participant in the USDA

national scrapie eradication program. The program includes identification of premises that have sheep or goats, individual animal identification, quarantine and depopulation of infected and high risk animals, genetic testing to determine susceptibility of animals in an infected flock and live animal testing of exposed animals in an infected flock. The eradication program also includes slaughter surveillance for the disease. Texas has had fourteen scrapie infected sheep flocks since May of 2001. Currently, four Texas flocks are quarantined for scrapie. This is an important disease for Texas, since the state ranks number one in the country for both sheep and goat production and Texas is a large marketer of sheep from around the country, with significant exports to Mexico.

Bovine Spongiform Encephalopathy (BSE – Commonly referred to as Mad Cow Disease)

This disease is a chronic, fatal, degenerative disease affecting the central nervous system of cattle. The disease was first diagnosed in 1986 in Great Britain and has caused thousands of cattle deaths in that and other countries of Europe. It has also been found in Asia. In May 2003, the disease was diagnosed in Canada and in December 2003, the first case of the disease was diagnosed in the state of Washington (in a cow of Canadian origin). BSE is believed to be the causative agent for new variant Creutzfeldt Jakob Disease in Humans.

The U.S. case, although of Canadian origin, has caused significant economic harm to the cattle industry and the economy of the United States and has resulted in significant changes in USDA, FSIS and FDA regulations to protect human health and prevent the disease in animals. Additionally, USDA has initiated an extensive surveillance effort to determine if additional cases are present in the United States. The objective of this surveillance effort – over the next 12 – 18 months – is designed to determine if additional cases are present in the United States and if present to determine the prevalence and distribution of the disease. USDA has earmarked approximately $70 million for this surveillance effort, with the objective to test up to 268,000 cattle in the country. The objective for Texas is to test between 17,000 and 27,000 cattle. Animals targeted for surveillance are 30 months of age or older, show central nervous system disorder symptoms, or are lame, crippled, emaciated or dead from unknown causes. Testing is being conducted on farms and ranches, at slaughter facilities (carcass is held pending negative results), at diagnostic laboratories, veterinary clinics and at rendering facilities. Testing for this surveillance effort is being conducted at the Texas Veterinary Medical Diagnostic Laboratory (TVMDL) at College Station, utilizing a "rapid screening test." Samples that are "inconclusive" on the rapid screening test are re-tested at the National Veterinary Services Laboratory. To date over 100 samples have been tested at the TVMDL under this surveillance program.

TAHC is supporting USDA efforts to achieve the surveillance objective. Significant veterinary staff time must be devoted to this effort.

Future – long term - surveillance objectives will be dependant upon the results of the current extensive surveillance effort.

Chronic Wasting Disease (CWD)

CWD is a transmissible spongiform encephalopathy of deer and elk. There is no known relationship between CWD and the other TSEs of animal or man. CWD is endemic in wild white-tail and mule deer and elk in areas of Wyoming and Colorado and has been found in wild deer or elk in at least five other states and in Canada. Additionally, the disease has been found in domestic cervidae in at least eight states. The disease has not been found in either wild or domestic cervidae in Texas, even though significant surveillance has been accomplished over the past several years.

USDA is developing a national standard for surveillance and management of CWD.

Texas Fever Ticks

The predecessor of our agency was established in 1893 to fight the Texas Fever Tick epidemic. Today the only places that fever ticks are found in the United States is in a tick quarantined zone in the Texas counties along the Rio Grande River (the disease is endemic in Mexico). In this area, "tick riders" employed by USDA patrol the river to round up, examine and treat cattle or horses that cross the river into the US, examine native cattle and other animals in the quarantine zone for ticks, and treat cattle or horses found to be infested with fever ticks. Currently 41 premises are considered to be infected – 39 from the quarantined area and two from the free zone. A major concern today is acaracide (pesticide) resistant ticks. Such ticks have been identified in several areas of Mexico. If such ticks can make their way into the US, we could experience significant disease outbreaks.

Fowl Registration Program

Dr. Max Coats will provide a brief report on the Fowl Registration Program that was enabled through legislative action by the 2003 Texas Legislature.

2. ANIMAL HEALTH EMERGENCY MANAGEMENT

Animal Disease Preparedness

We are currently updating the state Foreign and Emerging Animal Disease (FEAD) Plan in order to assure that response processes will enable the agency to rapidly and effectively respond to disease incursions or bio terrorism threats. Additionally, TAHC staff is developing a non-disease state animal emergency plan and are working with other emergency management personnel to develop local animal health emergency response plans. During the past one and one-half years, TAHC has conducted two test exercises to improve response capabilities.

Animal Disease Response

During the past fifteen months, TAHC has responded to four foreign animal disease outbreaks (**Exotic Newcastle Disease [END], Monkey Pox, Highly Pathogenic Avian Influenza [HPAI]**

and Bovine Spongiform Encephalopathy [BSE]), and two emerging or sporadic diseases **(Vesicular Stomatitis and Low Pathogenic Avian Influenza [LPAI]).**

Additionally, since October 1, 2003, TAHC and USDA veterinarians have conducted over 100 Foreign Animal Disease investigations in Texas. In this same time frame, the TAHC has concurrently had to address two brucellosis infected cattle herds, two tuberculosis infected herds and several swine brucellosis or pseudorabies infected herds while continuing to perform routine disease surveillance, control and eradication activities.

The combination of foreign animal disease response, emerging and sporadic disease response, in addition to routine disease surveillance and response activities have stretched TAHC to near the breaking point.

3. ANIMAL IDENTIFICATION

On December 30, 2003, U.S. Secretary of Agriculture Ann Veneman announced that the United States must develop and implement a "verifiable national system of animal identification." This announcement came on the heels of the discovery of BSE in the cow in Washington State.

Our current animal identification program is reliant on the brucellosis tag to identify animals for disease control purpose. As states have achieved success in controlling and eradicating brucellosis, the number of animals being vaccinated or tested for brucellosis has declined (except in states, such as Texas that still have a first point testing program) to the point that insufficient numbers of animals are identified to enable reliable disease surveillance and traceback.

For the past 2 – 3 years, a large number of persons from livestock industry organizations, state animal health agencies and USDA personnel have been working to develop a proposal for a new national animal identification program for the United States. This effort resulted in an animal identification plan called the United States Animal Identification Plan (USAIP). The goal of the plan is to provide an animal identification program that would enable effective animal disease control programs and provide capability to identify all animals that may have been exposed to a foreign animal disease within 48 hours after confirmation of the disease.

In May of 2004, USDA accepted the USAIP as the basis for a new national animal identification program, which will be called the National Animal Identification System (NAIS). USDA has made $18.8 million available from Commodity Credit Corporation (CCC) funds to begin initial implementation of the NAIS. Twelve million of this fund will be available later this year to states in the form of cooperative agreements to initiate the NAIS in the states.

The primary elements of the NAIS include:

Premises Identification
Individual Animal Identification
Group/Lot Animal Identification

Animal Identification Database
Infrastructure

The NAIS will utilize Radio Frequency Identification Devices (RFID), electronic data collection and electronic databases.

TAHC, the Oklahoma Department of Agriculture, Food and Forestry and the Osage Nation in Oklahoma are jointly making an application for USDA funding to develop and implement a Premises Identification System and begin implementation of the animal identification system. USDA funds, if acquired, will enable the agencies to begin implementation of the NAIS in Texas and Oklahoma. While this funding will be a significant asset to the states, long term funding and additional personnel will be necessary for Texas to fully implement and manage the NAIS in the state.

4. PERSONNEL AND FINANCIAL ISSUES

Needs Assessment

During the past twenty years, TAHC has experienced a reduction in staff from nearly 350 personnel in the 1980s to 198 in 2004. Part of the reduction has been logical and reasonable. As success was achieved in the brucellosis program, fewer personnel were necessary to successfully manage the brucellosis program.

However, in recent years the responsibilities of TAHC have significantly increased as animal disease programs have been initiated or expanded. Some of these include: Tuberculosis, Scrapie, CWD, Swine Brucellosis and Pseudorabies, Avian Disease Surveillance and EIA. Additionally, new disease control or surveillance programs have emerged, including BSE and surveillance for foreign animal diseases such as Foot and Mouth Disease and Classical Swine Fever. Add to these a voluntary Johne's Disease program and Animal Identification.

Many of the animal disease control programs entrusted to TAHC are cooperative disease control programs with USDA. Traditionally, TAHC and USDA have jointly conducted these programs with a combination of state and federal staff. In recent years, USDA has experienced similar budget and staff reductions as the states. In order for USDA to effectively respond to incursions of foreign animal diseases such as END, HPAI and BSE it must detail staff from all states to outbreak areas. This process has resulted in USDA (Texas) staff being detailed to outbreak sites outside the state 16% of the year in federal fiscal year 2003. TAHC staff has had to take up the slack to perform animal disease activities in the state that would have normally been performed by USDA staff.

Unfortunately, we do not see an end in sight. All indicators suggest that we will continue to see incursion of foreign and emerging diseases. We will also see expanded demands for additional disease surveillance and certification processes from trading partners who buy our animals and animal products**.**

Additionally, we must daily face the threat of the intentional introduction of a disease or agent.

Texas is number one in the nation for cattle production and for sheep and goat production. Additionally, the state ranks high in swine production, poultry production and has a very large and diverse exotic wildlife population. These factors make Texas a target. We also have a very long international land border and coast line that has traditionally not been a deterrent to illegal entry of animals or people.

The reality faced by TAHC is that we are rapidly approaching the point at which we will not be able to perform all the functions that we are charged to perform with currently available staff and fiscal resources.

Financial and Personnel Needs

Salary Equity

During the past year TAHC has experienced the loss of two highly qualified professional staff to other employers, notably USDA. The agency has also lost several staff to retirement and reduction-in-force. The agency has also experienced difficulty in recruiting highly qualified professional personnel to replace those lost. While we have been able to fill all positions, we are filling positions with minimally qualified staff or second and third choices – not first choices.

An evaluation of agency salaries compared to Midsize State Agencies [100 – 500 FTE] by the Mid-size Agency Coordinating Council (MACC) and Natural Resources Agencies reveals the following:

TAHC ranks 21st among the 25 MACC agencies in employee compensation – Approximately $6,500 per year less than the average and approximately $19,000 per year less than the top ranked agency.

TAHC ranks 9th among the 9 Natural Resource Agencies in employee compensation – Approximately $6,200 per year less than the average and approximately $19,000 per year less than the top ranked agency.

TAHC ranks third out of three agencies that utilize Veterinarian I and Veterinarian II personnel classifications.

83% of TAHC Veterinarian I are below mid point in their salary range and 98% of TAHC Veterinarian II are below midpoint in their salary range.

According to the State Auditors office, midpoint in the salary range is generally considered to be the market value for the classification.

The current average salary of all TAHC veterinarians (with an average of 13.4 years tenure) is only $475 per year above the starting salary for USDA veterinarians.

Increased funding of **$561,000** is needed to address salary inequity in the agency.

Additional Personnel

In an effort to plan for future animal health activities and assess future needs, TAHC conducted a program review and strategic planning process in the spring of 2004. During this process, the Executive Director asked TAHC management staff to assess current programs to determine fiscal and personnel needs and predict the needs for new programs that are on the horizon. Managers were instructed to identify personnel necessary to conduct all programs and activities mandated by current law and rule and estimate needs for new programs (such as BSE surveillance, animal identification, avian disease surveillance and FEAD surveillance[FMD and CSF].

This process indicates the need for significantly more personnel and funding over the next several years. The personnel and funding needs include the following:

Field Veterinarians	5
Veterinary Epidemiologists	2
Inspectors	25
Administrative personnel	8
Additional Personnel	**40**
Personnel costs, (including fringe)	$1,110,491
Materials and Supplies	$ 795,274
Additional fiscal needs	**$1,905,765**

Total for salary parity and additional personnel - $2,466,765

Agency Vehicles

The resource needs described above do not include the cost of purchasing additional agency vehicles. Only eight vehicles currently exist on the agency's inventory, and our request for authority to purchase eight additional and two replacement vehicles is pending approval by the Legislative Budget Board. **

Recent cost analyses have shown that driving agency-owned vehicles to conduct field operations is more cost effective than payment of mileage reimbursement to employees who drive personally-owned vehicles. In addition, the provision of agency vehicles has been an issue in both recruitment and retention of agency field staff.

** The request for an additional eight vehicles and two replacement vehicles was approved by the LBB subsequent to the July 2004 Agriculture & Livestock hearing.

Inspection Fees

During the 2003 legislative session, HB 3442 was passed by the Texas Legislature which provided authority for TAHC to "charge a fee for inspections conducted by the agency." Subsequent to passage of the bill, TAHC initiated an effort to assess agency inspection functions to determine activities on which inspection fees might be appropriate. Approximately 20 different activities were evaluated to determine if fees could be charged and determine the potential cost for collection of the inspection fee. The end result of this effort was the identification of two processes on which fees could potentially be equitably imposed on the livestock industries served by the agency. These processes included:

Approval of Veterinary Biological products for use in the state; and
Certificates of Veterinary Inspection issued by private veterinary practitioners

Agency legal counsel advised that fees could not be imposed on veterinary biological products without change to current statutory authority.

Agency legal counsel also recommended that the agency seek review by the Attorney General of the proposal to charge a fee on certificates of veterinary inspection. Subsequently, the Attorney General rendered the opinion that the agency could not charge a fee on certificates of veterinary inspection under the current statutory authority.

TAHC has assembled representatives of the livestock industry to identify potential mechanisms through which the agency could assess a fee or fees on the livestock industries. The agency hopes to develop potential fee mechanisms for presentation to the 2005 legislative session.

5. POTENTIAL LEGISLATIVE CHANGES

TAHC has identified several items for potential legislation. These include the following:

- ***Update definitions, terms utilized in Chapter 161, Texas Agriculture Code***
    - Clarify definitions and terms
    - Provide consistency throughout Code
- ***Update disease control authority provided in Section 161.041***
    - List of diseases is out of date and somewhat archaic
    - Authority to address diseases not listed is cumbersome
    - Section does not provide authority to utilize or require utilization of vaccination or other available remedies to control disease outbreaks
- ***Authority to enter public or private property - Section 161.047***
    - Authority restricted to TAHC Commissioners, veterinarians and inspectors

- Most agency disease control activities are cooperative with USDA. The section does not authorize cooperative agency personnel to enter premises and perform duties. In emergency disease control operations, personnel from many agencies and several states could be involved

- Should include "agents" or "authorized representatives"

- ***Clarify quarantine authority - Section 161.061 and related sections***

  - Authority limited to the "affected animals or the affected place"

  - Does not provide authority to quarantine an area of the state and the animals therein, or – as potentially could become necessary – the entire state

  - Does not provide authority to create disease buffer zones (an area where the disease is not believed to be present) that could be necessary to prevent movement of disease

  - Does not clearly provide ability to limit ingress and egress of people and conveyances to prevent movement of disease

- ***Carcass disposal requirements – Section 161.004***

  - Only approved disposal modes include burial and burning

  - To effectively address needs for emergency disease response must make provision for utilization of other disposal methods, including rendering, incineration, composting, and digestion

  - Should provide ability for Commission or Executive Director to determine appropriate methods for disposal to be based on the characteristics of the disease being addressed (example – burial or burning may not be most appropriate disposal methods for BSE)

- ***Destruction or slaughter of diseased and exposed animals – Section 161.045***

  - Authority limited to animals that are infected with or exposed to disease

  - Authority limited to livestock – does not include other species of animals

  - Does not include authority to conduct preventive slaughter – which is a component of the national FMD response plan

- ***Animal Identification***

- Assess current authority to assure that TAHC can effectively implement the National Animal Identification System within the state
    - Designate or recognize Premises Identification Numbers as official
    - Designate or recognize Animal Identification Numbers (electronic identification devices)

- Recognize animal agriculture as a part of our state's critical infrastructure and provide legislative authority to protect premises and animal identification records and databases and related livestock producer information from public disclosure.

Thank you for the opportunity to provide testimony to the House Agriculture Committee.

RECOMMENDATIONS

After the recent outbreaks of foreign animal disease and the growing threat of intentional introduction of a disease or agent into Texas livestock, the Committee recommends to the Legislature to support increased funding for the Texas Animal Health Commission to maintain the ability of the agency to respond to future emergencies.

The Committee supports the increased funding needed to address salary inequity in the agency and urges the Legislature to appropriate necessary funds.

Furthermore, the Legislature should support the suggested legislative changes recommended by the agency to provide it the tools necessary to respond to emergencies and to prevent further spread of deadly diseases.

ENDNOTES

[1] Surveys conducted by Clark Adams, Billy Higginbotham, and Dale Rollins funding 2003-04 in a study partially funded by the National Park Service and the Sheep and Goat Predator Board.

[2] Developed by Ken Cearley, with Funding by Sheep and Goat Predator Management Board, National Park Service, and Texas Farm Bureau.

[3] Research conducted by Morgan Scott (Department of Veterinary Anatomy and Public Health), James Cathey (TAES), Susan Cooper (TAES), and Jerry Stuth (Department of Rangeland Ecology & Management).

[4] Research conducted by Roel Lopez and Nova Silvy (Department of Wildlife and Fisheries Sciences).

[5] Mersinger, R.C. 1999. Impacts of feral hogs on reclaimed surface-mined lands in eastern Texas: a management perspective. M.S. Thesis. Texas A&M Univ. College Station. 76 pp.

[6] Partin, C.D. 1995. A survey of serum antibody titers to brucellosis and pseudorabies in feral swine in Texas. M.S. Thesis. Texas A&M Univ. College Station. 23 pp.