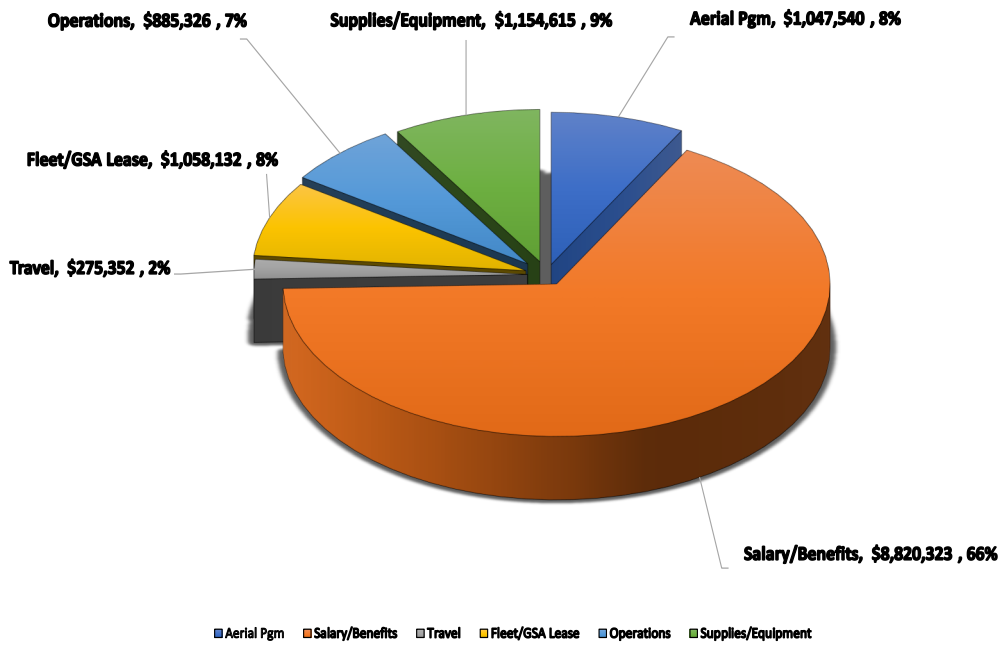
2019 STATE REPORT

USDA-Animal & Plant Health Inspection Service—Wildlife Services

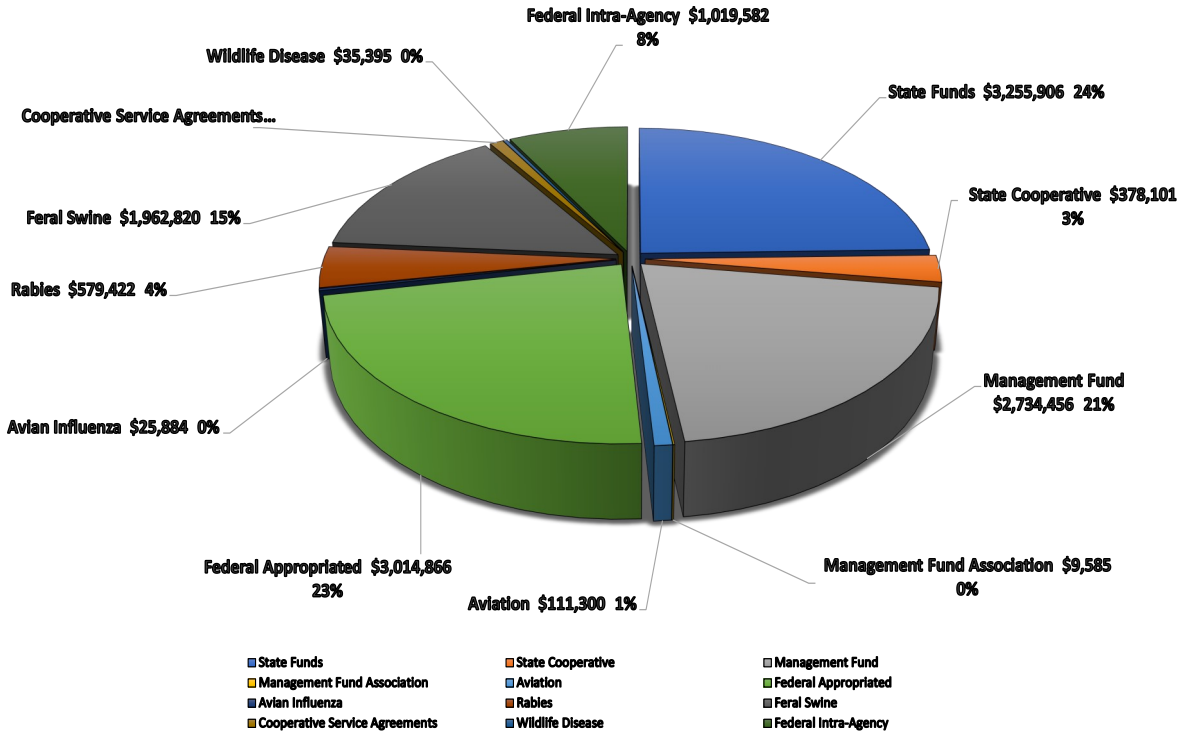
Texas A&M AgriLife Extension Service

Texas Wildlife Damage Management Association

FY19 TEXAS WILDLIFE SERVICES PROGRAM EXPENSES $13,241,288



FY19 TEXAS WILDLIFE SERVICES PROGRAM FUNDING $13,241,288



From the Director

Michael J. Bodenchuk, State Director

This Annual Report is our third edition, covering Federal Fiscal Year 2019. The Texas Wildlife Services Program is the only state program preparing an Annual Report that I'm aware of. The idea is to communicate directly with the cooperators and our employees, showcasing the entire program. Our FY 19 data rolled up through September 30, 2019 then it is reviewed, statistics compiled and the report is assembled. My goal has always been to have this report available for the Texas Sheep and Goat Raisers Association meeting in July of the following year.

So while the report focuses on the year which just passed, I'd like to use this column to focus on present and future activities. I write this from an office barely staffed by a skeleton crew while observing COVID-19 restrictions. Meetings have been cancelled, training delayed or eliminated, and the volume of conference calls increased exponentially. Keeping the operation working through these times has been a challenge.

I am proud to report that almost all of the Texas WS Field Activities were recognized as "essential duties" and employees were allowed to continue to provide essential livestock, crop and human safety protection projects throughout the pandemic. We recognized that some activities, such as waterfowl work in public parks, was probably nonessential and may put our employees and the public at risk. We have postponed these actions knowing that they will still need to be performed at some time in the future. But our predation management, beaver damage management, feral swine and airport protection programs have continued on.

This is not to say that there weren't impacts. Consistent with the Governor's direction, with input from APHIS, the TAMU System and even some of our building managers, we created a maximum telework program for office personnel who have done a great job of keeping our essential field employees working. We also instructed our employees to communicate with landowners via telephone, rather than stopping at the house or barn when leaving the property. Some cooperators have complained, but for the most part everyone has accepted the changes, hoping that we can return to some form of "normal" sometime soon.

Last year, I reported on the implementation of the Feral Swine Pilot Projects under the 2018 Farm Bill. In late December, 2018 Congress approved the newest Farm Bill, which covered agricultural programs in FY's '19-'23. Included in that language is $75M for "feral swine pilot projects" to be split evenly between WS and NRCS. Working with NRCS, we have identified three project areas; The Upper Leon River (Erath, Comanche and Eastland Counties), the Red River (Clay, Wichita, Wilbarger and Hardeman Counties) and the Canadian River (Potter, Oldham and Hartley Counties). In a perfect world, we would have hired trappers, met with County Commissioners and Extension Agents, held town-hall style meetings and started removing pigs through direct control and an integrated trap-loan program.

This hasn't been a perfect world. Hiring was delayed and we only got to meet with a few county commissions before the COVID-19 restrictions precluded public meetings. We're working to sign up landowners and get information on damage, but it hasn't gone as smooth as we would have liked. Nonetheless, we have removed over 3,000 pigs in the Upper Leon River Pilot Project area alone. With the addition of another helicopter pilot and, soon, another helicopter, we'll increase these efforts substantially before the end of the year.

While on the topic of feral swine, Texas WS continues to lead the country in the removal of pigs and the development of methods. Most of the research on feral swine toxicants has been done here in Texas and our employees have been instrumental in all phases, from providing hogs for pen trials to assisting in the capture of pigs for the field trials. While other sources of Federal funding continue to decline, feral swine funding has increased over the years and it is now a major source of funding for the Texas program.

Of course, the ability of the program to address livestock and wildlife predation is the most important part of our program for most of our cooperators. The National Agricultural Statistics Service reports calf predation continues to increase and predation remains the number one issue for sheep and goat producers. Predation management for pen-reared whitetail deer is increasing and the financial risks to those producers is extremely high.

(From the Director from page3)

In FY 19 we provided predation management protection for 211,914 calves, 324,008 goats and 334,918 sheep, we're now protecting over 53,207 pen raised whitetail deer, 53,149 exotics game animals plus native quail, turkeys and wild deer across the state. Predation management alone saved livestock producers more than $70M in FY 19.

We continue to support other agencies in accomplishing their mission. Our oral rabies vaccination (ORV) program is the largest of any state, dropping more than 1M baits across the border region to prevent the recurrence of the Texas gray fox or canine rabies strains. In FY 19, WS partnered with the WS National Rabies Management Program on an experimental project in South Texas involving a new bait type. The Texas WS rabies project supports public health and we partner with the Texas Department of State Health Services and National Rabies Management Program.

We also continue to assist with the protection of public infrastructure through beaver damage management to protect roads, flood control structures and drainage ditches. TxDOT and multiple counties count on our employees to assist in the removal of beavers and beaver dams when public resources are at risk. The Texas WS program includes some of the country's most experienced "blasters" who use binary explosives to carefully, but impressively, remove beaver dams in sensitive areas.

Last year, I reported that resources available to deal with beaver damage continue to decline. At one time, Texas WS we had a mobile force of 5-6 beaver specialists dedicated to address beaver damage across the eastern third of the state. With declining Federal funding and the removal of State funding back in 2003, that force has declined to a small handful of employees who conduct beaver damage management as a part of their other overall job. If you've ever been in a beaver swamp in the middle of August, you know how important it is to conduct this work and how underappreciated beaver trappers are. I see the need for additional resources to address beaver damage as one of our biggest challenges. We simply cannot take resources (funding or people) away from other work without leaving those customers without assistance. Yet, the need to address beaver damage is as big as ever and I anticipate growing problems over the next 2-5 years.

Wildlife vectored diseases are growing in importance and we have received requests to assist in research, surveillance and management of a number of diseases. We continue to assist the Texas Animal Health Commission and USDA-Veterinary Services with fever tick issues, including conducting aerial wildlife surveys. In FY 19, we mobilized to collect and sample feral hogs during the anthrax outbreak in the western Hill Country. Those samples, along with others collected in the past, provided the first link between feral hogs and anthrax: a high percentage of hogs collected had antibodies for anthrax, even those collected 6 months after the outbreak had passed. This indicates that pigs were coming into contact with the bacteria. We're collaborating with researchers to determine if the hogs are capable of amplifying and spreading anthrax.

The Texas WS program continues to work with other agencies on emergency planning and response. We're providing input into African Swine Fever (ASF) contingency plans and have been invited to review response plans in the Czech Republic. The US pork industry maintains the highest levels of biosecurity and the greatest food safety record of anywhere in the world. Yet, the possibility of ASF in feral swine could derail all the efforts of that industry.

In FY 19, WS crews from Texas and other states responded to flooding in Nebraska, providing aerial support to locate stranded farmers and livestock across a large portion of that state. In about 10 days, our crews flew all the flooded area, locating people and livestock impacted and providing timely response to those in trouble. It's just another way we put our resources to the benefit of the public.

As public servants, it is our obligation to manage our program for the benefit of all members of the public. Maintaining a strong agriculture industry is essential to rural economies in Texas and Wildlife Services works hard to protect agriculture, public property and safety every day. I am proud to work with the men and women of the Texas Wildlife Services program who provide these essential services and proud to share this Annual Report with you.

Mike Bodenchuk

State Director

Predation Management

Predation management is the process of minimizing negative consequences due to predation. I think we'll all agree that predators do a great ecological service- without them we'd be hip-deep in jackrabbits and ground squirrels. But for the Texas landowner trying to make a living raising goats or sheep, predation is the single greatest cause of loss to lambs and kids. Even with active management in place and all of the non-lethal methods a producer can afford, predation can exceed 6% of the lamb crop and up to 50% of kid goats.

In FY 19, Texas WS protected 211,914 beef calves (5% more than in 2018), 203,252 head of poultry (a 86% increase over 2018), 324,008 goats and kids (a 5% decrease), 334,918 adult sheep and lambs (a 24% decrease), 53,149 head of exotic game (6% decline) and 53,207 pen-reared whitetail deer (a 1% increase). Based on scientific studies of predator losses in the absence of control, Texas WS estimates that **predation management averted over $70,811,100 in losses**. While losses still occurred, and in some areas were significant, without the program in place many operators would not have been able to stay in the business.

Coyotes remain the number one predator of sheep and goats and coyote damage prevention is a year-round activity for small ruminant protection. Changes from wool breeds to hair sheep has increased predation risks- to maximize production and have lambs available for special holidays many producers leave bucks out year-round and lambing occurs throughout the year. In addition to coyotes, bobcats, feral hogs and mountain lions pose significant risks to sheep and goats.

Coyotes are also the number one predator of newborn calves. While overall the loss of calves is only 0.5% of the calf crop, for producers with predation problems it could approach 3-4% without management in place.

Black vultures are an emerging predator problem for cattle, sheep and goats. While turkey vultures locate their food sources by smell focusing on decaying flesh, black vultures can key in on potential food by sight. Black vultures have expanded their range in Texas considerably over the past 2 decades and are now found well into the south Panhandle. Warmer temperatures coupled with additional roost sites from extensive powerline and cell tower construction have allowed black vultures to nest and feed across a wide part of Texas. Black vultures have a huge feeding radius from their roost sites- 25-40 miles- so roost management is not an effective non-lethal strategy.

Black vultures key in on livestock giving birth in a pasture, It may begin with black vultures following turkey vultures when they feed on afterbirth, but once the black vultures find animals being born they will often harass the female and mob the newborn. It can be difficult to confirm predation by vultures, since they kill the animal before they even have a chance to stand up. Once a mob of vultures feed on a carcass, the physical evidence necessary to positively confirm the loss is missing.

Black vulture distribution in North America

Some examples of other significant predation management activities include:

- **Texas WS continues to provide significant sheep and goat protection in the Edwards Plateau and eastern Trans-Pecos. A total of 66 field employees are located in the traditional sheep and goat range as are 4 of the states 5 aircraft. While livestock protection is larger than just sheep and goats, our commitment to the industry is reflected in the location of our employees.**

- **Feral swine are effective predators of ground nesting species including wild turkey, quail species and endangered sea turtles. Texas WS continues to provide support to protect endangered nesting sea turtles on Matagorda Island. Through funding provided by the US Fish and Wildlife Service, Texas WS removed 399 feral swine from the refuge, including the mainland, to prevent sea turtle nest destruction. With timely removal of feral swine, the nests survive to contribute to the population of endangered turtles.**

Texas WS By the Numbers FY19

- **$70M Saved in livestock losses in FY 19**
- **3885 Properties Worked**
- **14,069,448 Acres Worked**
- **61,692 Person Day Visits**
- **15,519 Coyotes Removed**
- **28,619 Feral hogs Removed**
- **1,148 Fox Removed**
- **4,738 Surveillance Samples Collected**
- **240,703 Non-lethal Dispersals**
- **10,406 Technical Assistance Sessions**
- **21,265 Parties Consulted**
- **6,796 Leaflets Distributed**
- **131 Species Conflicts were Discussed**

Program Overview

The Cooperative Texas Wildlife Services Program is a joint effort between USDA-APHIS-Wildlife Services, the Texas A&M AgriLife Extension Service and the Texas Wildlife Damage Management Association. A three-party Memorandum of Understanding establishes that the USDA program shall operate the day-to-day management, integrating Federal, State and Cooperative funds and employees into one seamless program. The authority for the program rests in several Federal and State codes.

The program has been in existence for over 100 years, providing assistance to landowners with predation problems, rodent damage to rangeland and pastures and other wildlife conflicts. The history of the program charts the history of human/wildlife conflicts. Initially created to address predators and rodents, the program has evolved with conservation success in Texas.

As an example, when the program began, beavers were limited in number, suffering from unregulated trapping. However, beavers were successfully reintroduced into many areas by the Texas Game, Fish and Oyster Commission and regulated trapping allowed the beaver to thrive. More beavers, and more roads created and improved, means more conflict and beaver damage is now a prominent part of the cooperative program's efforts.

Similarly, the passage of the Migratory Bird Treaty Act made it illegal to "take" a number of what are now considered common species. Hawks, vultures, gulls and other large birds have increased in abundance with protection, and major efforts to restore goose populations have led to record numbers of some species. At the same time, aircraft travel has increased significantly as has the speed of commercial aircraft. While a slow airplane might dodge a collision with a goose or vulture, larger, faster aircraft cannot. The risk of collision has increased with both bird populations and the speed and design of aircraft. In 2006 we had 6 positions protecting airfields. In 2019, we had 13.

The program continues to support predation management for the livestock industry. Changes in landownership and land use has created areas within the historic sheep and goat country where predators are now abundant. In Edwards County, for example, the Wildlife Services program worked on only about 33% of the land.

With limited access, the strategy must be one of preventing predators' access to livestock. Our program works with cooperating landowners, constantly looking for only those coyotes or bobcats which are within striking distance of vulnerable livestock.

By integrating Federal, State, County and private funding into the program, Wildlife Services is able to address problems as they occur. Other agencies include the program in their operational plans for emergency activities, as we have personnel and resources available when the need arises. Emergency activities have increased and personnel from the cooperative program serve in that role often.

Finally, wildlife-borne disease continue to emerge as significant issues. Diseases such as plague, brucellosis, toxoplasmosis, CWD and rabies are always foremost on our minds as we handle and sample wildlife. The importance of wildlife diseases cannot be overstated- the COVID-19 pandemic which ground the global economy nearly to a halt had origins in wildlife. Whether we looking for production diseases such as brucellosis, wildlife hosts for human diseases such as rabies or foreign animals diseases that have the potential to impact global trade, the disease portion of the Cooperative Wildlife Services Program will likely increase in intensity and importance over the next decade.

Feral Swine Damage Management

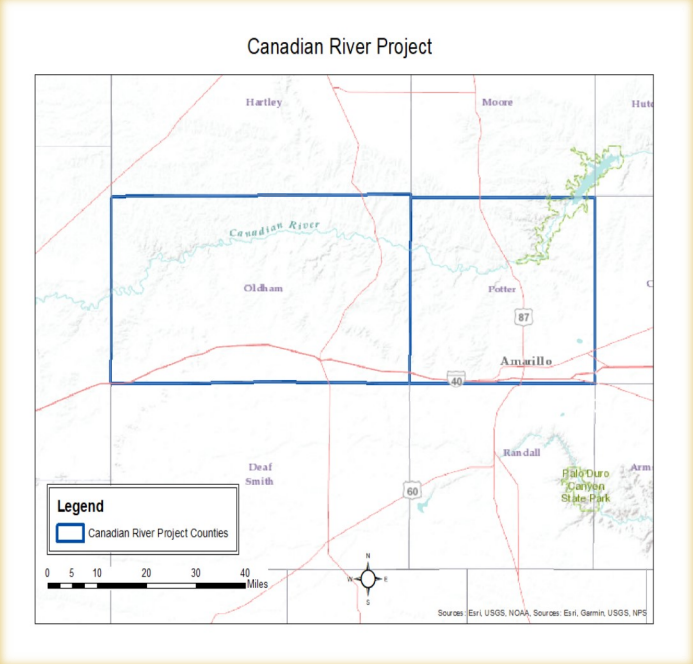
During FY 2019, the Texas Cooperative WS Program continued to provide national leadership in feral swine damage management. Texas employees removed 28,619 feral hogs from ranches across Texas while also supporting feral swine removals in several other states. Texas pilots logged almost 900 aerial hours after swine and about one-half of the pigs removed came from aerial operations. Texas Wildlife Services personnel also used these pigs to monitor for diseases; WS took 2,558 samples from 747 pigs. Multiple samples allow us to check for different diseases, ascertain genetics and establish an archive for future testing if necessary.

While the amount of work performed by employees is important, we recognize that the government cannot solve this issue alone. Our program relies on landowner cooperation and assistance. In our operational program, we will remove feral hogs where damage is widespread and beyond the scope of a landowner to resolve. We try to block up cooperating landowners and maximize our time through scouting for pigs, coordinating the setting of traps and optimizing aircraft schedules. Once we've relieved the problem, we also count on private landowners to keep feral hog numbers down so we can take our personnel and move to a new area. Towards this end, we conduct educational outreach, what we call Technical Assistance, to educate people. During FY 19, WS conducted 3352 different outreach efforts, including web hits, workshops, exhibits and one-on-one training. These efforts reached 7,636 people and 1,275 brochures or leaflets were distributed or downloaded.

The economic value of feral hog management is important. Based on previous research studies that looked at damage averted by management, WS saved agricultural producers over $10,459,000 in FY alone.

Up until FY 19, the WS program has been limited to addressing only feral hog damage- there simply has not been enough resources or time to reduce feral hog populations across the State. The “2018 Farm Bill” (enacted in December 2018- technically FY 19) created the Feral Swine Pilot Project via $75M to be split evenly between APHIS and the Natural Resource Conservation Service (NRCS) over the 5 years of the Farm Bill. The legislation requires the agencies to establish pilot projects and to document the nature and extent of damage, develop and implement ways to address the damage, assist landowners and remediate the damage. Projects have to be coordinated between the 2 agencies and approved by the State Technical Committee.

As with any new project, it takes a bit of time to get started. Funding actually doesn’t start to flow when the bill is signed, and the agencies had to receive their allocations. WS and NRCS met several times at the Washington D.C. level and prioritized those states with high feral hog populations. Among the states identified, WS and NRCS were invited to develop and submit joint projects for funding. Within Texas, we developed 3 pilot project areas, based on priority watersheds and conservation priorities of the 2 agencies. These projects include the Upper Leon River project area (Eastland, Erath and Comanche Counties), the Canadian River project area (Potter, Oldham and Hartley Counties) and the Red River project area (Hardeman, Wilbarger, Wichita and Clay Counties). While we’re working on the Red River area, the Oklahoma Wildlife Services program is also working on the other side of the river, making a huge area where feral hogs will be removed.

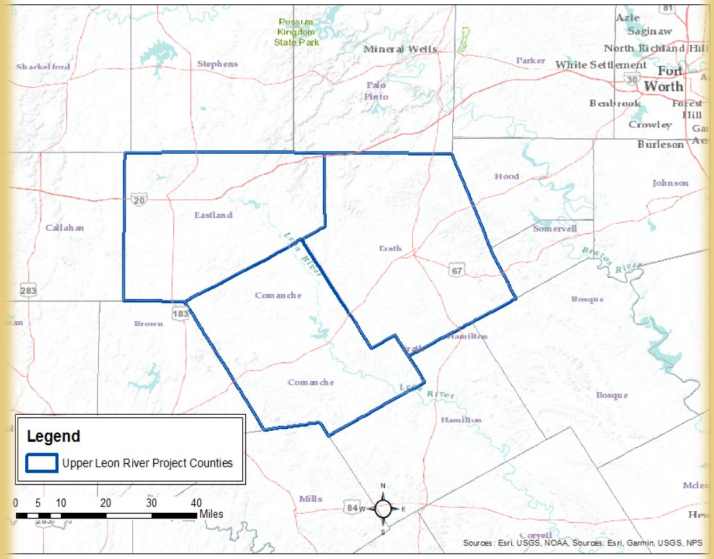


The projects themselves are designed to be thorough and, hopefully, seamless. Federal WS employees will conduct operational removal of pigs in the areas through trapping, shooting (including night vision and thermal shooting) and aerial gunning. A new helicopter pilot has been hired and an additional helicopter will be added to prevent any erosion of existing aerial shooting. Damage assessments will be conducted by Texas A&M AgriLife Extension technicians. Through a partner agreement, NRCS will fund a trap loan program in the project areas and a technician will be available to assist landowners set up the "loaner own" traps and instruct them on proper baiting and camera monitoring. Cost-share funding will be available for bait for the trap loan program.

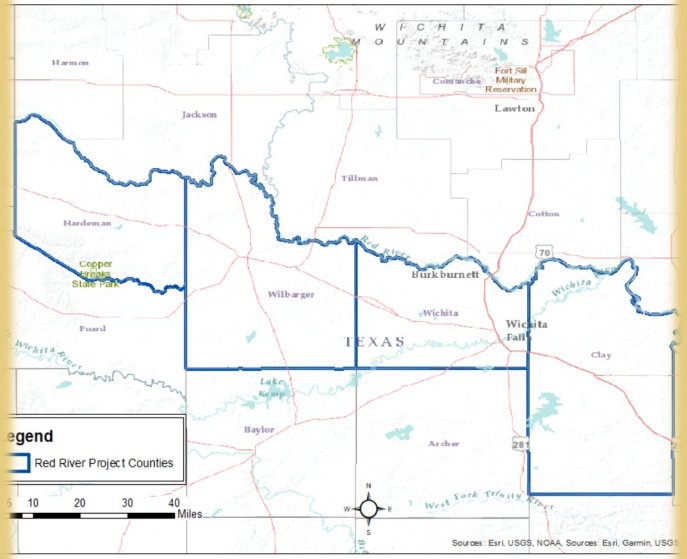
WS spent much of FY 19 working with NRCS on project design and submission and getting the partnership agreements in place. Federal employees have been hired, but that process was slower than we expected: every state with a Farm Bill project was competing for the same pool of candidates! Texas had only 8 applicants for 5 jobs and 4 of the candidates took jobs in another state, requiring us to re-advertise the jobs. Rolling the project out to the counties has also been hampered by the COVID-19 pandemic and has been more difficult than any of us had desired. However, field removal of pigs began during FY 19 with 1,009 hogs removed in the Upper Leon River project area. Additional time was spent on outreach and signing landowner agreements.

Because this is a new program, Congress will expect a complete report before the next Farm Bill is considered (FY 2024). It is our design to conduct operational removals for 2 full years- perhaps longer, depending on crop cycles, and then keep the trap loan program and damage monitoring in place for a third year. This would allow for the project to be completed by the time a report would be due to Congress. As they say on television- Stay tuned for more!

Upper Leon River Project



Red River Project



Use of Unmanned Aerial Vehicles (UAV's)


Feral hog damage to milo field

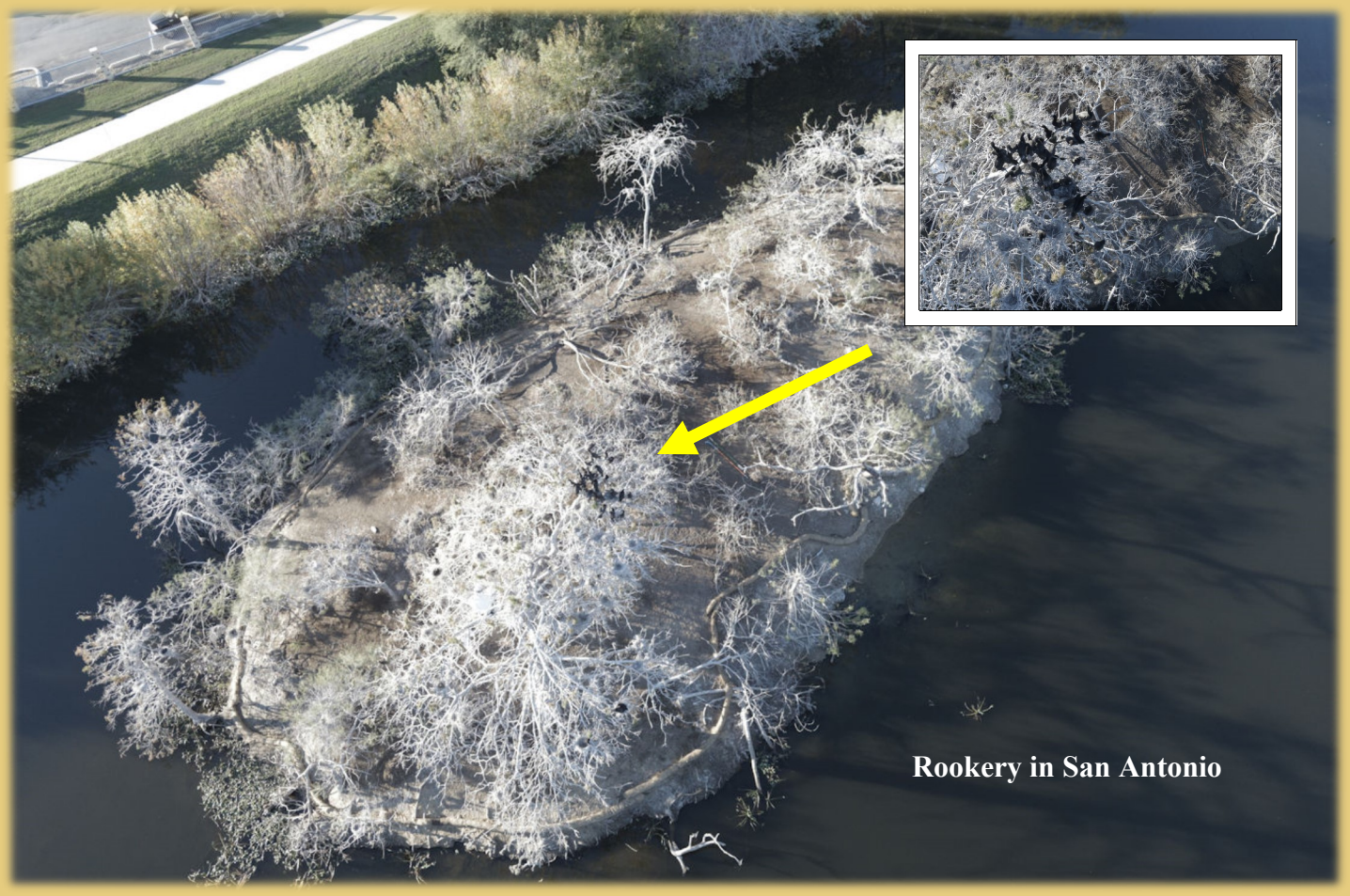
Traditional approaches to collecting wildlife population information, habitat data or even wildlife damage estimates can be resource and labor intensive, possibly inaccurate, biased and difficult to validate. The use of drones, or unmanned aerial vehicles (UAVs) is rapidly changing the way some wildlife managers do business. UAVs provide a platform to capture accurate data and high-resolution imagery better, faster, cheaper and sometimes safer than traditional methods. UAVs have been used successfully to monitor a wide range of species from birds and reptiles, to elephants and marine species such as turtles, whales, and dolphins. Mapping habitat or damage to the habitat caused by wildlife allows an assessment of loss of habitat, condition and suitability. This is an important piece of information for wildlife managers and producers. The accuracy of the information is important for any management decisions that will be made in the future. As we all know when decisions are made there will be a cost tied to those decisions. Additionally, the ability to model the spatial and temporal abundance of species provides possible insights into population dynamics and ecosystem processes or disease transmission and persistence.


Feral hog damage to milo field

The Texas WS program utilizes UAVs to assist with wildlife damage identification, crop damage, locating beaver dams, checking traps that are placed in hard to reach areas, vulture roost harassment and monitoring egret rookeries. Recently the UAV was used to identify travel routes used by coyotes during an urban coyote conflict. The Texas WS program currently has one drone operator that serves as a committee member to the National WS UAV program.

For more information on UAV rules and regulations please visit:

https://www.faa.gov/uas/recreational_fliers/



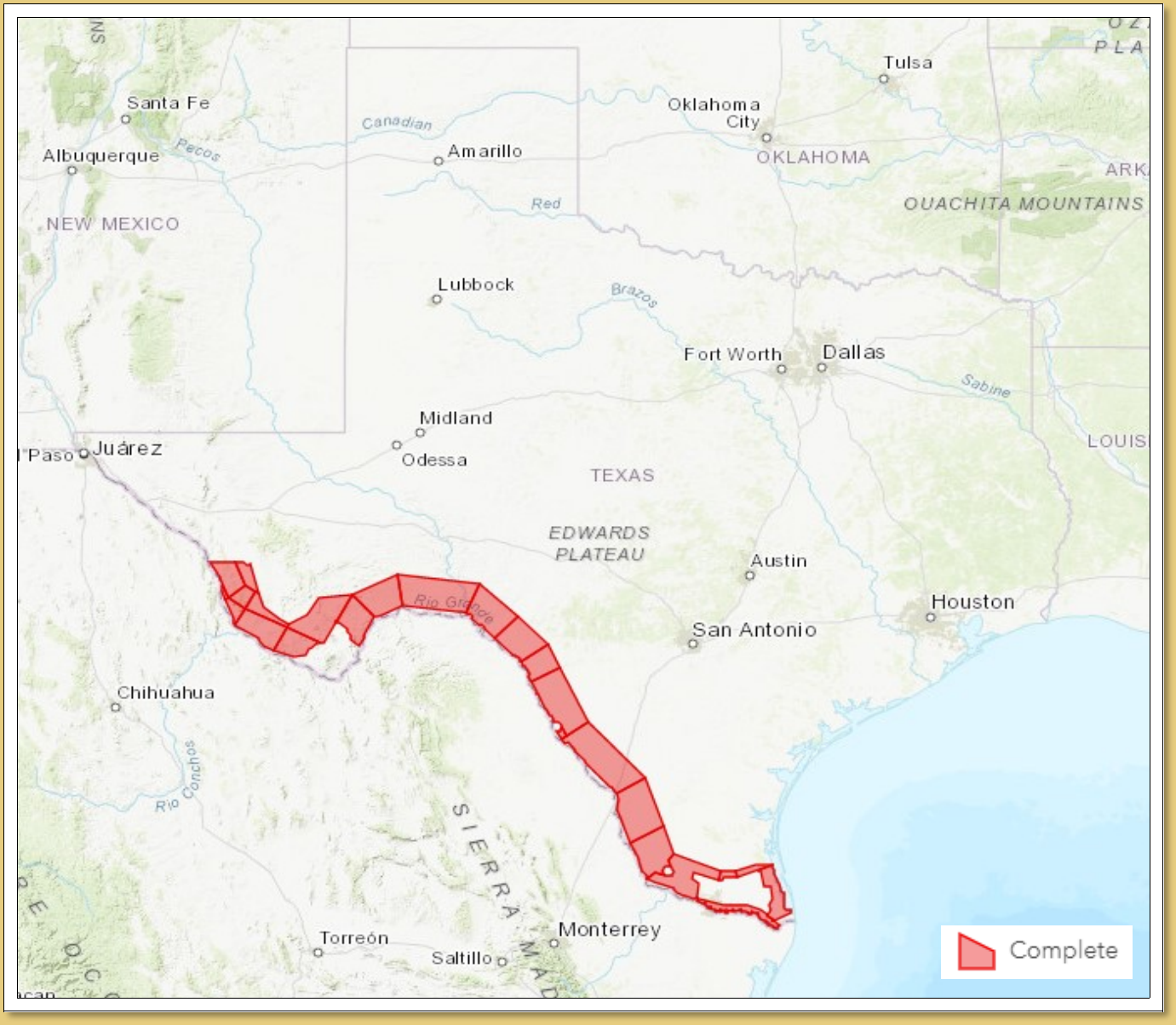
Rookery in San Antonio

Rookery in San Antonio

Rabies Management

Oral rabies vaccination (ORV) has been in use in the United States since 1990, in Canada since 1985 and in Europe since 1980. Currently there are 16 states distributing oral vaccines for raccoons in the U.S., while Texas WS distributes baits for gray fox and coyote. The ORV baits are distributed by air and ground personnel. Fixed-wing aircraft are the most effective means for distributing large numbers of the ORV baits. Hand-baiting is important for reaching urban areas where there may be safety risks associated with distributing baits by air and to reduce the possibility of people and domestic animals coming into contact with the baits. WS's federal authority includes management of wildlife which serve as vectors for zoonotic diseases. APHIS-WS is a signatory party to the North American Rabies Management Plan, which calls for the elimination of terrestrial rabies on the continent. Successful programs for the vaccination of companion animals have greatly reduced the risk of human rabies from domestic dogs or cats, but wildlife rabies still remains a significant concern. In FY 19, Texas WS partnered with the Texas Department of State Health Services in the distribution of **1,034,700 Oral Rabies Vaccine (ORV) baits** along the international border to prevent the reintroduction of canine and Texas grey fox rabies from Mexico. The lack of surveillance in wildlife in Mexico makes maintenance of the border zone crucial.

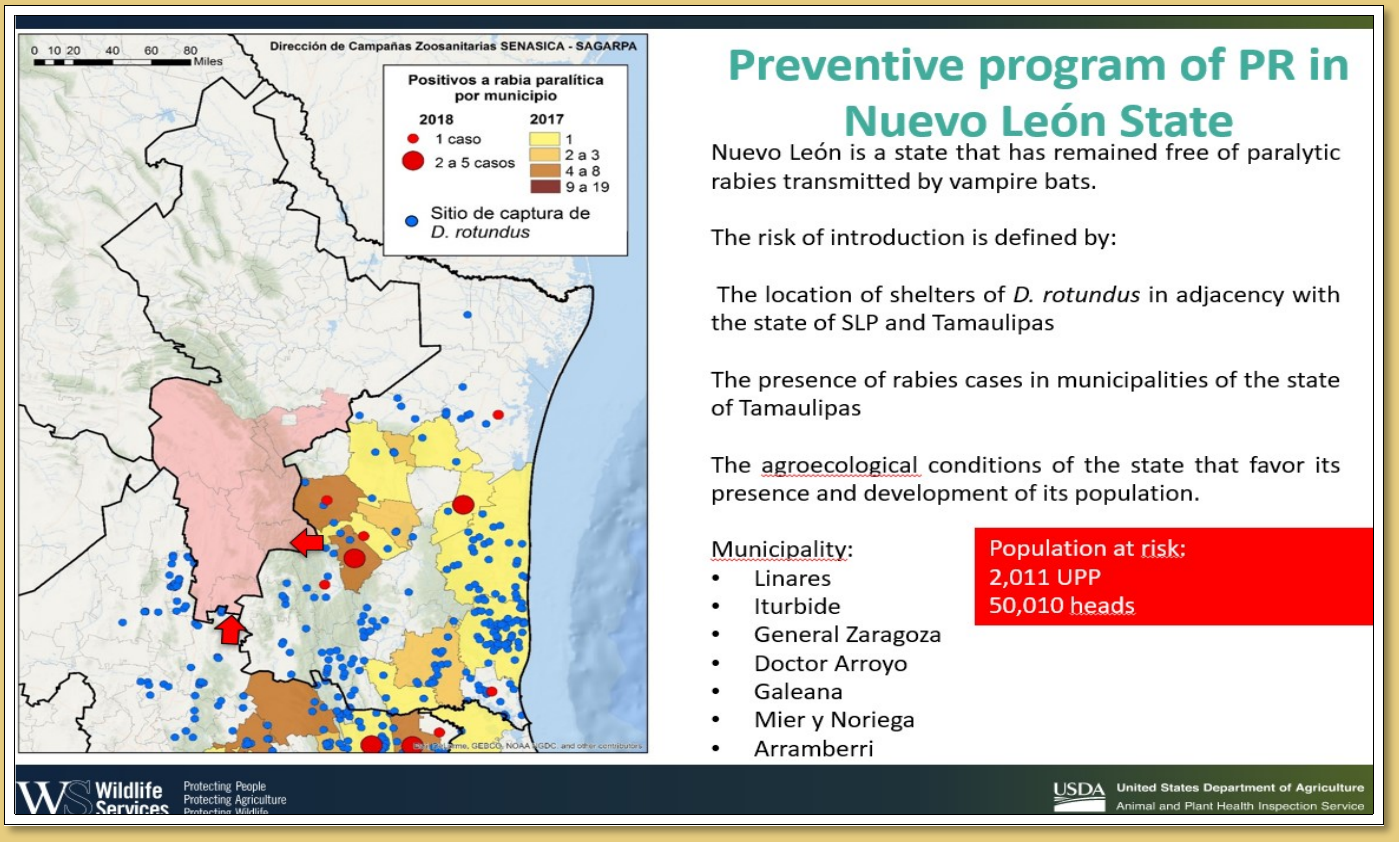
FY2019 ORV Distribution Areas



Other significant rabies management events include:

Texas WS Vampire Bat efforts

- **55 day visits by 3 employees**
- **5,778 cattle inspected for bat bites**



- Common vampire bats have expanded their range northward within Mexico and are now approaching the international border with Texas. Texas WS partnered with APHIS-International Services to train employees in vampire bat identification and trapping techniques. APHIS-IS and Texas WS also produced a 5 minute DVD in English and Spanish for distribution to landowners, veterinarians and wildlife officials on both sides of the border to increase awareness of the pending arrival of vampire bats and to educate people as to the signs of rabies in livestock. The DVD was debuted at the Rabies in the Americas Conference at the beginning of FY 17 and by the end of the year more than 1000 copies had been provided to people in the affected area.

- Texas WS conducted significant surveillance for terrestrial rabies in FY 18 using Federal funding from the National Rabies Management Program. State and Federal employees combined to collect 419 biological samples to test for vaccine efficacy and to determine the presence of rabies in suspect cases. With shrinking budgets, maintaining an effective surveillance program continues to be difficult.

Beaver Damage Management

During FY 19 Texas WS worked 370 properties/ sites for beaver damage (compared with 400 in FY 18). By comparison to long term data, 2019 appears to be below average.

Beaver caused damage was down, but Texas WS documented $1,920,913 in damage in FY 19. By far, the greatest amount of damage was to dams and impoundments. In much of Texas, beavers dig into the soil just at or below the waterline creating "bank dens." These bank dens weaken the dam. Repairs are necessary for flood control dams and complete failure of a stock pond dam is not unusual. Texas WS documented over $409,025 in damage to dams alone in FY 19.

Public outreach remains an important part of the Texas WS program. Teaching people how to avoid beaver damage is critical to avoiding losses. In FY 19, Texas WS conducted 366 beaver outreach projects, including individual consultations, presentations and demonstrations reaching 1,090 people.

Beaver dam removed in north east Texas

Roads remain especially vulnerable to beaver damage since beavers often plug road culverts backing up water against the road base. Texas WS has a funding agreement with TxDOT to support beaver dam removal statewide. In practice, most of this occurs in the Ft. Worth and College Station Districts. While only $ 350,100 in actual road damage was documented in FY 19, it was because WS was available to respond and drain the water, preventing considerable additional damage.

Protected Rescores Highlights

- **1,135** dikes, dams or impoundments and **221,246** acres of timber protected from beaver damage
- **96** miles of road, **153** bridges and **2** railroad trestle protected from beaver damage
- **1,000** miles of irrigation ditch and drainage protected
- **$118,425,612.35** value of resources protected from beaver

Airport Wildlife Hazard Program (AWHP)

“Strikes” are when birds or other animals collide with an airplane. This may occur when the airplane is taking off, landing, or while it is in the air. Wildlife strikes have increased in the past 30 years because of a combination of expanding populations of many wildlife species that are hazardous to aviation and increasing numbers of aircraft movements (Dolbeer and Eschenfelder 2003). For example, 13 of the 14 largest (>8 lbs) bird species in North America have shown significant population increases in the past 30 years. These species include Canada geese, white and brown pelicans, sandhill cranes, wild turkeys, and bald eagles.

Managing bird and other wildlife hazards at airports is a complex, public-sensitive endeavor involving many species of wildlife governed by the Migratory Bird Treaty Act and other Federal, State and local regulations. Because of the complexity and sensitivity involved in managing wildlife hazards, airports are required to employ professional biologists trained in wildlife hazard management at airports (14 CFR Part 139.337 and FAA Advisory Circular 150/5200-36a [FAA 2012]) to assess hazards, provide training, and to assist in the development, implementation, and evaluation of wildlife hazard management plans. Such professionally developed and implemented management plans minimize the likelihood of catastrophic or major-damage wildlife strikes on an airport and provide crucial support during litigation in the aftermath of any significant strike event that might occur.

In recognition of WS’ expertise and accountability, the Federal Aviation Administration (FAA) entered into a Memorandum of Understanding (MOU) with WS, which encourages airports to “request technical and operational assistance from WS to reduce wildlife hazards.” The Department of Defense executed a similar MOU to address wildlife conflicts at military installations. In 2013, a MOU between WS, the National Association of State Aviation Officials (NASAO) and the FAA was signed, fostering cooperation between the signatory parties to reduce wildlife hazards at airports in every state.

WS provides protection of Airport Resources and Human Health and Safety associated with the protection of aircraft, runways, and taxiways. This category includes human safety protection and response related to wildlife-aircraft collisions on runways or birds strikes in the air.

Texas WS provided technical assistance or direct management assistance at 36 "Part 139"-certificated airports, non-certificated airports, and military airbases (28 civil and 8 military). This assistance resulted in a reduction, suppression, or prevention of hazardous conditions caused by wildlife. Due to this complexity and number of airports assisted, Texas WS provided 13,432 hours of assistance to the 36 airports across 33 counties in the 8 districts of the Texas Wildlife Services Program.

Developing Methods

In the FY 18 Annual Report, we shared components of the Texas Cooperative Wildlife Service Program's Strategic Plan. While we focus on the results-based mission of "Providing Wildlife Services" we do so through the critical areas of "Valuing and Investing in People," "Information and Communication" and "Developing Methods." The last area- Developing Methods- isn't limited to research only; some of the best ideas come from trappers.

In FY 19, the Texas WS Innovation Award went to Clint Kelly, who developed a portable vulture trap to allow him to easily assist landowners experiencing vulture damage while they were waiting on their migratory bird damage permit from the US Fish and Wildlife Service. Traditional vulture traps can be large and not very portable. Mr. Kelly's design allows a technician to put the trap in the back of a truck and install it quickly on a property. When nonlethal methods are not effective for hazing vultures away from newborn livestock, this smaller trap removes the most aggressive of the birds and makes future hazing more effective.

Also, in FY 19, the WS program assisted the National Rabies Management Program by testing an alternative oral rabies vaccine on coyotes under field conditions. Separate from the Border Oral Rabies Vaccine (ORV) project, WS coordinated with several landowners in south Texas who had not received ORV over the past several years and dropped 32,000 baits on these ranches. After the bait drop, when the coyotes had enough time to develop anti-rabies antibodies, coyotes from the area were collected and sampled to determine the efficacy of the bait. The results are promising and provide the first field data on a different ORV vaccine in coyotes.

Back in 2014, the WS Deputy Administrator committed to using only non-lead ammunition for aerial gunning of feral hogs nationwide. The use of lead ammunition has long been associated with lead poisoning of waterfowl and the move away from lead ammunition has gained momentum, both within the firearms industry and in government. However, not all lead alternatives are created equally, and some have been very disappointing. Steel shot, a suitable alternative for waterfowl, is not manufactured in a large enough diameter to be effective on feral hogs. Steel shot is also extremely hard and has resulted in ricochets which are unacceptable when shooting from the air. Many of the non-lead alternatives are designed to fragment on impact, which may be effective in a law enforcement situation but has not been effective or humane in aerial shooting.

Because of the volume of shotgun shells we purchase, establishing effective specifications for shotshells is a critical need for WS. Working with a private laboratory in Texas during FY 19, we evaluated lead shot, steel shot and several lead alternatives to establish contract specifications. The laboratory tested muzzle velocity, velocity at 50 yards, pattern density and pellet uniformity and hardness and reported on all loads. From their data, WS was able to develop contract specifications

for shotshells which will effectively and humanely kill feral hogs from helicopters. Effective, humane loads not only save taxpayer money, but increase safety of aerial crews by reducing the amount of time necessary to kill a hog.

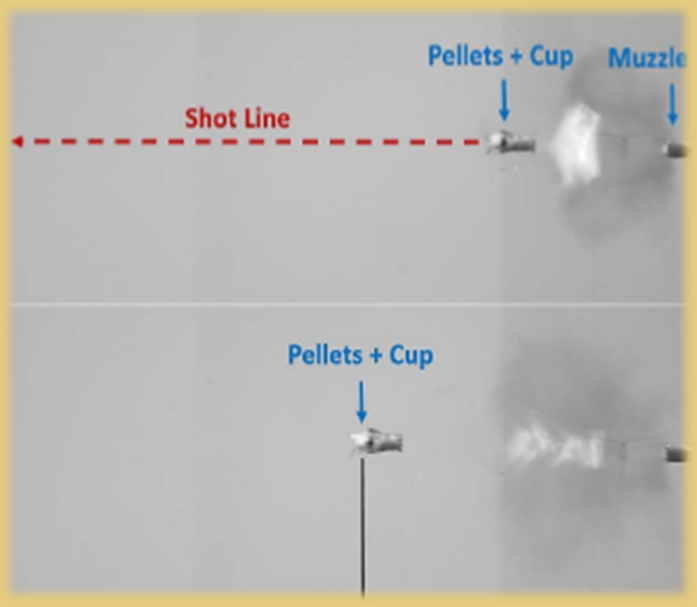
Shotgun Pattern Test

Feral hogs continue to be a focus area for other methods development as well. Because the Texas WS program handles more feral hogs than any other state program, we are often asked to assist in collaborative research. In FY 19, WS partnered with others at Texas A&M University to measure the effectiveness of existing outreach with an eye towards increasing the impact of our workshops and trainings. Texas WS also partnered with researchers at the National Wildlife Research Center (NWRC) to measure feral hog damage, measure the reduction in damage following control, examine disease transmission risks across the international border with Mexico and to look at the actual DNA of the *Brucella* bacteria from different areas of the State. Texas WS also participated in the ongoing field trials of a novel new toxicant for feral hogs, assisting NWRC and other partners with field applications, evaluation and ideas for improvement.

Pellet Deformation Test

Developing methods, whether for feral hog damage management, predation management or beaver damage abatement, is a critical need. The field employees of the Texas Cooperative Wildlife Services Program play an important role in identifying and testing new and better ways to manage human-wildlife conflicts.

Muzzle Velocity Test



APHIS / Wildlife Services Emergency Response to Floods in the State of Nebraska

In mid-March 2019, the Midwestern United States experienced major flooding along the Missouri River and its tributaries. Nebraska experienced an unprecedented early March blizzard where up to three feet of snow had fallen in some areas. Within three days the temperature rose 60° F and the snow began to quickly melt. The frozen ground was not able to absorb the water and the runoff went to the local creeks and rivers, which were still frozen. Water and ice overflowed banks causing flooding at historical proportions, destroying dams, bridges, roads, agriculture operations, and homes. Thousands of cows, calves and other livestock were killed and displaced.

The affected portions of Nebraska were significant and the scope of what was being requested of Wildlife Services was substantial. FEMA requested that 65 counties including Native American Reservations be surveyed. Wildlife Services aerial surveillance identified 188 points from 54 flights that covered 25,716 miles over nine flying days

Wildlife Services had six aerial survey crews for most of the Mission Assignment. There were two crews from Nebraska, two crews from Texas, one crew from Wyoming and one crew from South Dakota. Four Wildlife Services GIS personnel were mobilized, three of them were embedded with the aerial crews.

The Texas WS program would like to recognize our aerial crews Tyson Baker, Richard Batla, Robert Elliott and Curtis Wollman for the outstanding effort to assist in this response. These crewmembers were recognized from the U.S. Department of Agriculture's Animal and Plant Health Inspection Services Administrator, for extraordinary effort in emergency response in assisting the State of Nebraska with the recovery from this massive flooding.

Awards…..

Awards are one way we can recognize and reward exceptional performance. The Texas WS program is proud of our overall performance, and it is obvious that we cannot recognize everyone for exceptional performance-there are just too many examples every day. The awards policy has been written as a Texas specific policy and is available to any employee through the Texas WS SharePoint Site.

Gina Chairez-Blochlinger

2019 TWSP Administrative Employee of the Year.

William Evans

2019 TWSP Trapper of the Year.

Clint Kelly

2019 TWSP Innovation Award.

Lynn Stotts

2019 Outstanding Trapper of the Year by the Sheep and Goat raisers Association.

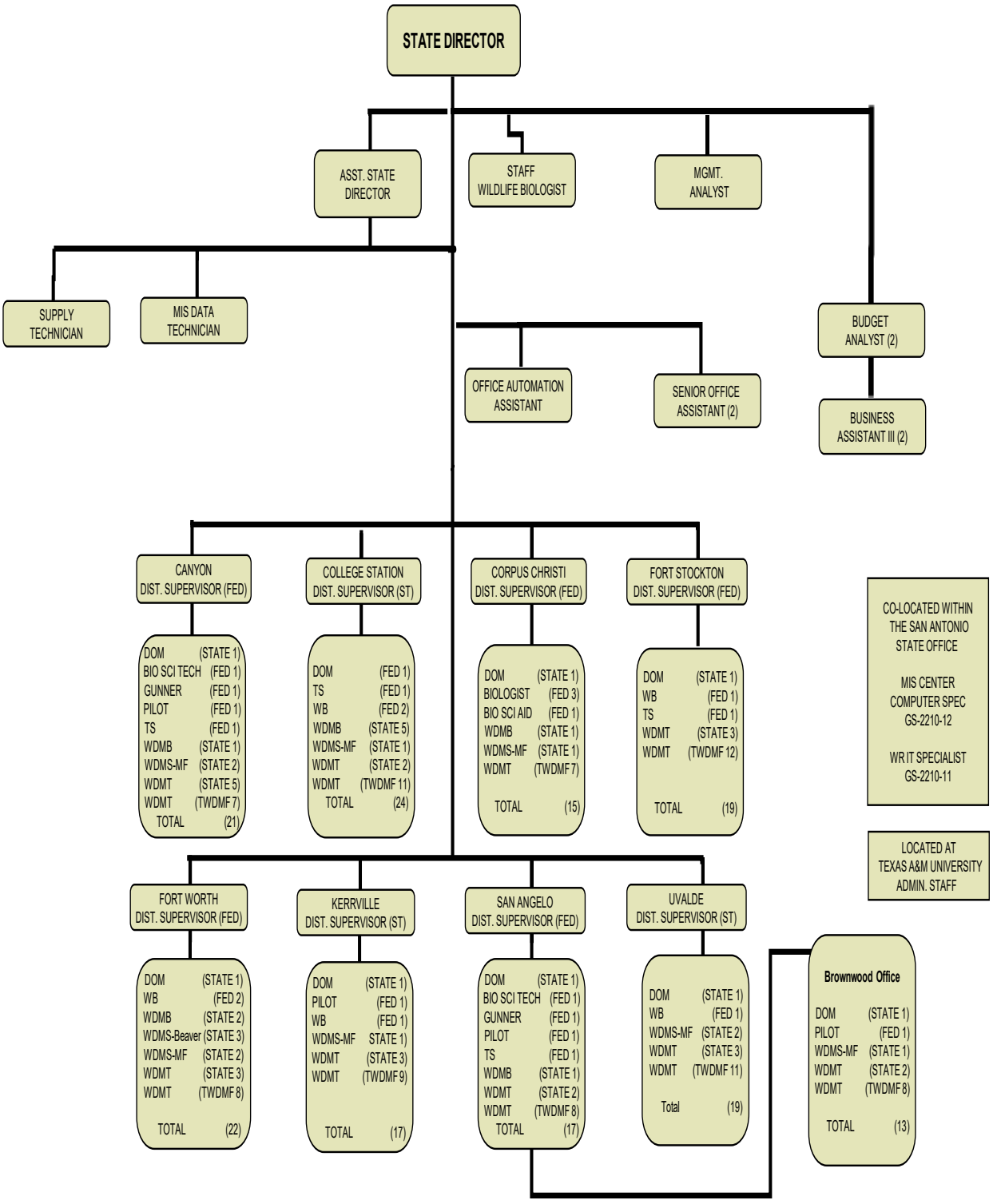
Value of Resources Protected

- **1698 aircraft valued at $15,857,650,002.00 resource protected**
- **2,833,276.5 acres of pasture and rangeland valued at $2,695,072,354.00**
- **62,634 acres of wetlands valued at $7,206,802,352.76**
- **307 Residential buildings valued at $83,990,000.00**
- **478,172 head of cattle valued at $747,470,032.94**
- **324,008 head of goats valued at $66,267,271.99**
- **334,918 head of sheep and lambs valued at $24,637,188.18**
- **53,207 Domestic White-Tailed deer valued at $154,034,435.34**
- **53,149 Exotic livestock valued at $43,481,407.35**

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
WILDLIFE SERVICES

TEXAS WILDLIFE SERVICES PROGRAM
2019 ORGANIZATIONAL CHART

TEXAS A&M UNIVERSITY
TEXAS A&M AGRILIFE EXTENSION SERVICE
TEXAS WILDLIFE DAMAGE MANAGEMENT ASSOCIATION
TEXAS WILDLIFE DAMAGE MANAGEMENT FUND



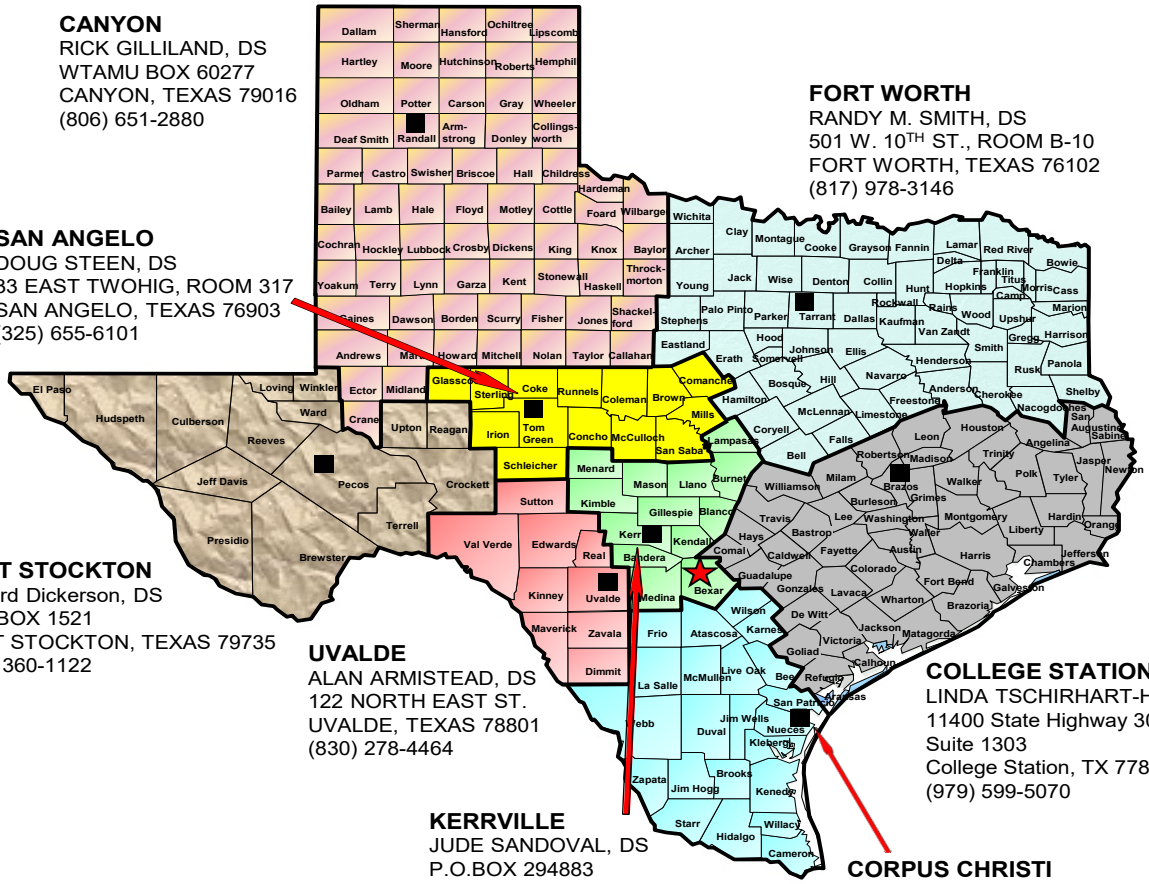
DOM DISTRICT OFFICE MANAGER
TS TROUBLESHOOTER
WB WILDLIFE BIOLOGIST
WDMB WILDLIFE DAMAGE MANAGEMENT BIOLOGIST (Urban/Rural)
WDMS-Beaver WILDLIFE DAMAGE MANAGEMENT SPECIALIST-Beaver
WDMS-MF WILDLIFE DAMAGE MANAGEMENT SPECIALIST MOBILE FORCES
WDMT WILDLIFE DAMAGE MANAGEMENT TECHNICIAN
BIO SCI TECH BIOLOGICAL SCIENCE TECHNICIAN
BIO SCI AID BIOLOGICAL SCIENCE AID

TEXAS WILDLIFE SERVICES PROGRAM

CANYON
RICK GILLILAND, DS
WTAMU BOX 60277
CANYON, TEXAS 79016
(806) 651-2880

FORT WORTH
RANDY M. SMITH, DS
501 W. 10TH ST., ROOM B-10
FORT WORTH, TEXAS 76102
(817) 978-3146

SAN ANGELO
DOUG STEEN, DS
33 EAST TWOHIG, ROOM 317
SAN ANGELO, TEXAS 76903
(325) 655-6101



FORT STOCKTON
Richard Dickerson, DS
P.O. BOX 1521
FORT STOCKTON, TEXAS 79735
(432) 360-1122

UVALDE
ALAN ARMISTEAD, DS
122 NORTH EAST ST.
UVALDE, TEXAS 78801
(830) 278-4464

COLLEGE STATION
LINDA TSCHIRHART-HEJL, DS
11400 State Highway 30
Suite 1303
College Station, TX 77845
(979) 599-5070

KERRVILLE
JUDE SANDOVAL, DS
P.O.BOX 294883
KERRVILLE, TEXAS 78029
(830) 896-6535

CORPUS CHRISTI
RICK SRAMEK, DS
P.O. BOX 9259
CORPUS CHRISTI, TEXAS 78469
(361) 299-1176

★ **STATE OFFICE**
MICHAEL J. BODENCHUK, SD
BRUCE R. LELAND, ASD
CORY W. WILSON, SWB
P.O. BOX 690170
SAN ANTONIO, TEXAS 78269-0170
(210) 472-5451

■ **DISTRICT OFFICES**

SD	STATE DIRECTOR
ASD	ASSISTANT STATE DIRECTOR
DS	DISTRICT SUPERVISOR
SWB	STAFF WILDLIFE BIOLOGIST

04/05/19

Funding for this publication was provided by the Texas Wildlife Damage Management Association.