

# **FERAL HOG MANAGEMENT PLAN**

**U.S. Fish and Wildlife Service  
Hagerman National Wildlife Refuge  
6465 Refuge Road  
Sherman, TX 75092**

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Feral Hog Management Plan  
Hagerman National Wildlife Refuge

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Hagerman National Wildlife Refuge  
Feral Hog Management Plan

**I. Work Statement**

The goal of the Feral Hog Management Plan is to control the expanding population of feral hogs (*Sus scrofa*) on Hagerman NWR by reducing their numbers. Successfully accomplishing this goal will result in less competition for food, water and space between feral hogs and native wildlife; reduce habitat disturbance; reduce destruction of nests of ground nesting species such as dickcissel, turkey, mallard, quail, reptiles and amphibians; and reduce damage to refuge roads, impoundments, streams, and farm fields through excessive rooting behavior feral hogs engage in while foraging for food. Feral hog control is a vital management tool in efforts to meet the overall goals and objectives established for Hagerman NWR.

**II. Background Information**

The first documented record of hogs in the United States was in Florida in 1593. Introductions followed in Georgia, North Carolina, and South Carolina which led to established free-ranging populations throughout the Southeast. Free-ranging practices continued until they were outlawed in the mid 1900's. Populations of unclaimed, wild hogs increased, then spread throughout the Southeast and mid-south states.

Today, feral hogs are found throughout the southeastern/southern United States from Texas east to Florida and north to Virginia; and in California, Hawaii, Puerto Rico, and the Virgin Islands. They are highly adaptable, opportunistic animals and with each generation, domestic characteristics diminish and traits needed for survival in the wild improve.



Feral Hogs (*Sus scrofa*)

**Feral Hogs in Texas**

In the 1830's and 1840's, many hogs escaped or were released as people fled for safety into the United States or Mexico during the fight for Texas independence. In the mid 1800s, hostilities between the United States and Mexico ended and settlers once again brought livestock, including free ranging hogs, to Texas.

Today, Texas is home to an estimated 2 million feral hogs, the largest feral hog population in the U.S. Their numbers are continuing to increase because of their high reproductive potential and the lack of natural predators. Texas AgriLife Extension Service estimates that statewide annual economic damage caused by feral hogs from 2006-2009 was \$52 million.

Feral hogs are distributed throughout most of the state and inhabit at least 225 of the 254 counties. Generally, hogs overlap the white-tailed deer range, with the highest population densities occurring in east, south and central Texas. For the past several years, there has been an increase in population and distribution due in part to intentional releases, improved habitat, increased wildlife management practices, disease eradication, limited natural predators, and high reproductive potential. Hogs are found in a variety of habitats from moist pine forests in east Texas to the brush country of south Texas. They prefer bottomlands such as rivers, creeks, and drainages when available, but also use farm fields and other uplands. Hogs are generally found in dense vegetation cover often associated with water, but also do well in drought prone environments. During hot weather, they enjoy wallowing in wet, muddy areas and are never far from dense protective cover. They will concentrate in areas of food availability, especially where there are nut producing trees or agricultural crops

In the state of Texas, feral hogs are considered unprotected, exotic, non-game animals. Therefore, they may be taken by any means or methods at any time of year. There are no seasons or bag limits; however a hunting license and landowner permission are required to hunt them.

#### Feral Hogs on Hagerman National Wildlife Refuge

Based on sightings reported by Refuge staff, visitors, and hunters, the feral hog population has expanded rapidly over the past several years. The current Refuge hog population is estimated to be between 750 and 1,000 with groups of 150+ hogs having been observed in Refuge fields. The detrimental effects of these free-ranging animals are visible in every habitat type throughout the entire 11,320 acre Refuge.

### **III. Feral Hog Biology**

#### General and Reproductive Biology

The appearance of feral hogs is often about the same as domestic hogs and their coats vary in color and pattern. A mature hog may reach a shoulder height of 36 inches and weigh from 100 to over 400 pounds. Excessively larger hogs are generally not far removed from domestication. Males are generally larger than females and feral hogs are more muscular than domestic hogs with relatively very little fat. Feral hogs have four continuously growing tusks (two on top, two on bottom) and the lower tusks tend to continuously sharpen. They have relatively poor eyesight, but have keen senses of hearing and smell.

Feral hogs are capable of breeding at six months of age, but eight to ten months is normal provided good nutrition is available. Gestation is around 115 days with an average litter size of four to six; however under good conditions they may produce 10 to 12 young. While capable of producing two to three litters per year, research has shown the majority of sows have only one per year. Young may be born throughout the year with peak production in the early spring. The young are born with a 1:1 male to female sex ratio. The average life expectancy of a feral hog, under good conditions, is about four to five years; however, they may live up to eight years.

Mortality in feral hog populations is greatest in the young less than three months of age, mainly due to accident, starvation and predation. Adult mortality is largely due to hunting, parasites, disease and tooth deterioration. Predation by coyotes and bobcats is only a minor limiting factor.

Feral hogs are omnivorous. They are very opportunistic feeders and much of their diet is based on seasonal availability. Foods include grasses, forbs, roots and tubers, browse, mast, fruits, bulbs and

mushrooms. Animal matter includes invertebrates (insects, snails, earthworms, etc.), reptiles, amphibians, and carrion, as well as live mammals and birds if given the opportunity. Feral hogs are especially fond of acorns and domestic agricultural crops such as corn, milo, rice, wheat, soybeans and peanuts.

Hogs are usually nocturnal, but they may also be active during early morning or late afternoon periods, but only when temperatures are conducive and when seeking suitable shelter or wallowing areas. They seldom move around at mid-day unless disturbed. Major, continual disturbances can cause feral hogs to permanently shift their home range several miles away.

The average home range for feral hogs is normally  $\frac{1}{2}$  to 3 square miles but has been documented to be as large as 19 square miles, with the primary influence being the availability of food and water. Fall and winter ranges are generally larger than spring and summer ranges. 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. Boars have larger daily, seasonal, and overall home ranges than sows. Sows with newborn young will stay in a very small area during the piglets' first couple of weeks of life.

### Disease and Parasites

There has been relatively little in-depth documentation of many of the diseases of feral hogs and their spread to livestock and humans. However, there are two diseases that are documented fairly well - pseudorabies and swine brucellosis. Other diseases hogs may carry are tuberculosis, anthrax, and tularemia.

Pseudorabies is a viral disease of the central nervous system that can affect domestic and feral hogs and fatally affect cattle, horses, goats, sheep, dogs, and cats. Wild animals such as raccoons, skunks, opossums and small rodents can also be fatally infected. Pseudorabies is not related to the rabies virus and does not infect people. Once infected, the hog is a lifetime carrier and will periodically shed the virus through the mouth and nose. Transmission of the disease can be through direct contact, contaminated feed and water, ingestion of infected tissues, or contaminated trailers.

Swine brucellosis can cause infertility in boars and abortions in sows. The disease is transmitted through reproductive discharges and once infected a hog is a carrier for life. The only effective way to control the disease is to test and remove infected individuals, a task impossible to do in a wild population. Swine brucellosis is contagious to humans and symptoms may range from severe flu-like symptoms to arthritis or meningitis. There is no cure for this disease in animals while humans can be treated with antibiotics which normally clear the infection.

Feral hogs harbor several parasites some of which might pose problems for man or other animals. Fleas, ticks, and hog lice are some common external parasites that a hog may acquire. It is thought that feral hogs do not occupy an area long enough or in sufficient numbers to get infected with large numbers of internal parasites or facilitate transmission to humans. However, internal parasites can occur in feral hogs and may include roundworms, kidneyworms, lungworms, stomachworms, whipworms, liver flukes and trichinosis. Trichinosis infections in humans are established by consumption of undercooked, infected pork.

Many hunters throughout the state of Texas take feral hogs for food. In general, this is a safe practice and as long as the meat is thoroughly cooked negative consequences of meat consumption should not be anticipated. However, ranchers, farmers and hunters do need to be aware of potential feral hog diseases and take every precaution to avoid infection. There are state and federal laws governing the transport and relocation of feral hogs. Blood tests are required by law before feral hogs can be relocated. Hunters, trappers, butchers and wildlife managers should always wear rubber gloves when handling or dressing feral hogs. Try to avoid contact with reproductive organs and blood, and wash thoroughly after contact.

## Wildlife Management Concerns

Feral hogs compete directly with game and nongame wildlife species for food. Deer, squirrels, waterfowl, turkeys, and many other species depend on acorns. Hogs also prefer acorns and are very efficient at finding them. However, the primary issue related to wildlife management is destruction of habitat and consumption of eggs/destruction of nests of ground nesting species.

Rooting, trampling, wallowing and digging activities are the first indicators of the presence of feral hogs. These activities are in pursuit of roots, tubers, mast, and invertebrate food resources. Rooting is viewed as disruptive to vegetative communities and successional patterns, and the activity alters the forest floor habitat and nutrient cycling. Rooting activities also mix soil horizons, reduce ground vegetative cover and leaf litter, accelerate decomposition of organic matter, accelerate leaching of certain minerals, and alter ecosystem nitrogen transformation processes. Rooting and digging around riparian areas can increase siltation that degrades streams and affects fish and other aquatic life. Feral hogs have been found damaging Refuge row crops and pasture lands, food plots, pond levees, fences, and prairie restoration sites.

The rapid pace at which the hog population on Hagerman NWR has increased is of major concern to Refuge personnel. During the past 10 years, hog sightings have steadily increased even though Refuge employees and two refuge neighbors have conducted trapping activities as time and resources have allowed.



Refuge employee baits a walk-in hog trap with corn. USFWS

## **IV. Authority for Action**

The Biological Integrity, Diversity, and Environmental Health policy (601 FWS 3) of the U.S. Fish & Wildlife Service on refuge lands is to engage in the necessary control of wildlife within the National Wildlife Refuge System to assure balanced of wildlife and fish populations consistent with the optimum management of refuge habitat.

Title 50 CFR Part 30, Section 11 – Control of feral animals.

- (a) Feral animals, including horses, burros, cattle, swine, sheep, goats, reindeer, dogs, and cats, without ownership that have reverted to the wild from a domestic state may be taken by authorized Federal or State personnel or by private persons operating under permit in accordance with applicable provisions of Federal or State law or regulations.

Title 50 CFR Part 31, Section 14 – Official animal control operations.

- (a) Animal species which are surplus or detrimental to the management program of a wildlife refuge area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private individuals.
- (b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.

In the state of Texas feral hogs are considered exotic. Officially, they are classified as a non-game, non-protected species. As such, there are no formal hunting seasons and feral hogs can be taken by whatever means. Their non-game status exempts them from the laws concerning wanton waste. No hunting license is required for depredating hogs, but a hunting license is required if hogs are being hunted for other than depredation including for sport or meat.

## **V. Management Options**

The Refuge has identified the following methods to be used to control feral hogs:

### **A. Live Trapping**

Feral hogs may be trapped using bait on Refuge lands at anytime by Refuge staff. Great discretion will be used in the placement of traps and feeders to accommodate any safety concerns or complaints by adjacent private landowners. Traps will be placed in appropriate places and activated traps will be checked each morning to ensure all animals are removed in a humane fashion so they will not be subject to overheating, or lack of food and water. Trapped hogs will be shot in the head at close range to ensure a humane demise. The carcasses may be disposed of by donating the meat to public/ private/ non-profit organizations, used during Refuge community events that are free to the public or left on the Refuge for use by scavengers. Refuge staff will not use hogs for personal use. If large numbers of hogs are collected some carcasses may be buried.

### **B. Shooting**

Feral hogs may be shot on Refuge lands at anytime by qualified Refuge staff using lead-free ammunition. Great discretion will be used when shooting hogs to accommodate any safety concerns or complaints from adjacent private landowners or Refuge visitors. Hogs will be shot in the head or heart/lung area at close range to ensure a humane demise.

Night shoots will be used at the Refuge Manager's discretion depending on the situation. All participants in feral hog shoots will have completed a firearms safety course and have a copy of their certificate on file in their station personnel folder. Law Enforcement Officers will not have to have a certificate on file if they use a Service weapon (i.e. 12 gauge pump shotgun, model 870 or Bush Master rifle) since they are certified with these weapons during annual law enforcement training. Shooters will use only weapons they have received familiarization safety training with. It is preferred that staff use Service owned guns

and ammunition. However, use of personal weapons will be allowed. Staff will use their personal ammunition if they use a non-government weapon to avoid the appearance of impropriety. Staff will coordinate with Texas Parks and Wildlife (Dispatch Office) and the Refuge Manager prior to any night shooting activity. Texas Parks and Wildlife Game Wardens will be allowed to participate in night shoots. Refuge/State staff will use marked government vehicles and be in uniform during any night shooting activities.

Aerial shooting has several benefits including high effectiveness and over-all low cost. Aerial shooting of hogs on Refuge lands may be conducted by USDA-APHIS - Texas Agrilife Extension Services – Wildlife Services personnel. With written permission from adjacent landowners, hogs on neighboring lands may also be taken during aerial shooting which will greatly benefit the Refuge. Carcasses will be left in place unless the location is not suitable.

The carcasses may be disposed of by gift to public or private institutions, non-profits, used for free Refuge community events, or left on the Refuge for use by scavengers. Refuge staff will not use hogs for personal use. If large numbers of hogs are collected some carcasses may be buried.

### C. Public Hunting

Following an approved Hunt Plan and NEPA process, the general public may shoot feral hogs during scheduled Refuge feral hog hunts, or as incidental take during any established Refuge hunting season. Feral hogs may only be taken during the daylight hours of any established Refuge hunt, and the same regulations for permits and legal weapons apply as for the current hunting season, including lead-free ammunition. There is no sex, age, or size limit on the number of feral hogs that may be taken. All hogs taken become the property of the hunter. An Environmental Assessment, Hunt Plan, and other related NEPA requirements were completed in 2011 and feral hog hunts were discussed under Public and Recreational Uses in the Comprehensive Conservation Plan completed in 2006.

### D. Trapping Under Special Use Permit

Feral hogs may be live-trapped by Special Use Permit (SUP). All SUP's will contain special regulations to ensure public safety and animal welfare during all trapping and transport activities. Feral hogs may not be trapped during scheduled Refuge hunts or the week prior to hunts. All feral hogs captured become the property of the permittee. The SUP will require all feral hogs taken from the Refuge live be handled in accordance with the Texas Animal Health Commission's Regulations for Moving Live Wild Hogs. The text of these regulations may be obtained on line on the TAHC website at <http://www.tahc.state.tx.us>.

## VI. Monitoring

Monitoring of the various control options will play a very important role in the management of the feral hog population on Refuge lands. All Refuge personnel are required to report to the Refuge Manager any success on hog control and removal during their activities, including any sightings of hogs or excessive hog sign on the Refuge. Data on hogs taken and sighted is kept on an Excel spreadsheet at Refuge Headquarters. Hunters on Refuge hunts are required to report all game harvested, including hogs.

## VII. Program Administration

Feral Hog Management at Hagerman NWR will be carried out or supervised by Refuge staff as a management action to preserve and protect Refuge resources based on the information below:

1. Free-ranging hogs are considered feral animals and exotic invasive species by the U.S. Fish & Wildlife Service and may be destroyed by authorized Refuge personnel at anytime. Reference Title 50 CFR Part 30, Section 11 and Title 50 CFR Part 31, Section 14.
2. The Refuge has a current Comprehensive Conservation Plan approved in April 2006. Under *Goal 1 – Restore, enhance and protect the natural diversity of the Refuge and the broader Arkansas/Red River Ecosystem for the benefit of trust wildlife and resident wildlife; Objective 7- Manage 3,531 acres of uplands and other habitat naturally to sustain populations of resident wildlife, and reduce by 50 percent exotic invader species and feral animals and their impacts on the environment.*
3. For public hunts, all activities will be conducted as described in the station Hunt Plan and Environmental Assessment completed in 2011.
4. Special Use Permits to allow trapping and removal of feral hogs from the Refuge will be approved and administered according to Service policy.

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