

Identification

The term “feral hogs” applies collectively to Eurasian wild boars (i.e., Russian boars), domesticated hogs that have become feral, and hybrids of these two. Feral hogs also have been called European wild hogs, wild boars, razorbacks, pineywoods rooters, woods hogs and other more "colorful" names. All these names refer to the same species of swine. However, it is important to note that the hog-like collared peccary, or javelina (*Tayassu tajacu*), a native species of the southwestern U.S., belongs to a different family and is not a feral hog.

Eurasian Wild Boars

Eurasian wild boars have longer legs, larger heads, longer snouts, and a larger head-to-body ratio than other feral hogs. They have shorter, straighter tails than feral hogs or hybrids. The coat usually consists of light brown to black bristles with cream to tan tips. The back of the head and part of the rostrum are covered with brown to black bristles with white tips. The underside is lighter in color (cream to smoky gray) and the legs, ears and tail are darker than the rest of the coat—usually dark brown or black bristles with no light-colored tips. Bristles of the pure Eurasian hog are the longest and thickest of all types and usually have multiple splits at the tips. Eurasians have no neck wattles or syndactylous (joined or webbed) digits, as have been found in the other types of wild swine. The three strains of wild hogs in Texas are the Eurasian, the feral (escaped or released domestic hogs), and hybrids of these two. Few, if any, pure Eurasian hogs remain. Coat color, pattern and bristle length can help identify the strain of feral hog. Texas ranchers and sportsmen released Eurasian wild boars for hunting in the 1930s. Many of these animals escaped and began breeding with feral hogs that were already free ranging. This led to the decline of the pure Eurasian strain; there are now few, if any, in Texas.

Feral Hogs

Feral hogs are domestic hogs that have escaped or been released into the wild. With each generation the animals' domestic characteristics diminish as they develop the traits necessary to survive in the wild. Their original breed and their nutrition during development determine the size and color of feral hogs. Coat color and pattern are highly variable. Solid black is the predominate color, but hogs also may be brown, red, white, spotted, belted (black or brownish red with a white band across the shoulders and forelimbs) or have rare blue or gray roan patterns. Bristles of feral hogs are shorter than those of Eurasian boars and hybrids. Bristles are less thick than those of Eurasians but thicker than those of hybrids. Bristles are a solid color and split at the tips.

Hybrids

Hybrid hogs are crosses between Eurasian boars and feral hogs and have characteristics of both. Coat color and pattern can resemble that of Eurasian boars, feral hogs, or any combination of the two. Bristles are shorter than in Eurasians but longer than in feral hogs, and not as thick as either of the other two. The bristles have split tips. The under-fur varies from black to a whitish or smoky gray and may be a different color than the bristles. Hybrids may have neck wattles and syndactylous digits. The javelina, a native of the southwestern U.S., is often confused with the feral hog, although they are not closely related.

Feral hogs are so adaptable to different environments, so adept at survival, and have such a high reproductive rate, that their population has exploded. This has made them significant pests in much of Texas.

Characteristics

Overall, feral swine are smaller, leaner, and more muscular than their domestic counterparts. Average boar and sow weights are about 130 pounds and 110 pounds, respectively, although the largest adults may weigh more than 400 pounds and be more than 3 feet tall and 5 feet long. Males have larger heads and tusks than females. Compared to domestic swine, feral hogs have more well-developed shoulders, longer and larger snouts and tusks, smaller and mostly pricked ears, longer and coarser hair, and straighter tails (with a bushy tip). Some feral hogs develop a mane or crest of hair on their necks and backs that can be raised when they are angered. This is the reason for the nickname "razorback." Juveniles of all types of wild swine may have striped patterns that disappear as the hogs mature. Longitudinal striping is rarely seen in domestic hogs.

Feral hogs have rounded body contours, short legs, and cloven-hoofs with four toes, two of which have been modified into large dewclaws. Males develop thick areas of tough skin, cartilage and scar tissue on their shoulders. This area, called the shield, develops continually as the hog ages and fights and may be up to 2 inches thick. Feral hog boars weigh an average of 130 pounds; sows average 110 pounds. However, much larger hogs have been documented. This hog weighed 465 pounds.

Biology and Ecology

Feral hogs have poor eyesight but excellent senses of hearing and smell. Their specially developed snouts are flattened and strengthened by a plate of cartilage, which allows them to root in all types of soil. Hogs have 44 teeth; the molars have low crowns with simple cusps. The permanent teeth are in place by the time a hog is 22 months old. Males of all three types of wild swine have four continually growing tusks (canine teeth) that they use for defense and to establish dominance for breeding. Tusks project from the sides of the mouth, can be extremely sharp, and may grow 5 inches before they are broken off or worn down from use. The upper tusks (sometimes called witters or grinders) function as whetstones to the lower tusks, keeping them sharp. If an upper tusk is damaged or deformed, the corresponding lower tusk can continue to grow in a complete circle and re-enter the lower jaw.

Reproduction

Feral hogs are the most prolific large, wild mammal in North America. With adequate nutrition, a feral hog population can double in 4 months. Breeding occurs throughout the year when conditions are favorable, and seasonally when food supply and nutrient quality vary. Females begin breeding at about 8 to 10 months old, or as young as 6 months if food is abundant. Under favorable conditions, sows can produce two litters every 12 to 15 months, with an average of four to eight piglets per litter and a sex ratio of 1:1. Younger sows tend to have smaller litters, while an older sow may have as many as 10 to 13 piglets. Piglets are weaned in 2 to 3 months. Drought and food shortages can delay breeding

and reduce the number of piglets born, but feral hog populations recover quickly when conditions improve.

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 rest during the day in dense, shady areas and move at night to more open areas for food and water. Female feral hogs may have as many as 10 to 13 piglets per litter. With adequate nutrition, a feral hog population can double in 4 months. Feral hogs can be found in many different habitats, but prefer moist bottomland and riparian areas.

Behavior

Feral hogs are mostly social animals and tend to travel in family groups. A basic group, called a sounder, consists of one or more sows and their young. Weaned pigs remain with their mother until another litter is due or until they have mated. Other groups may consist of young females, bachelor males, or other combinations. Adult boars older than 18 months are almost always solitary animals that rejoin groups only to mate or to feed on a particular food source. Farrowing sows will temporarily separate themselves from a group. Group sizes vary considerably by region and season. Groups normally consist of two to 20 individuals, but as many as 40 or 50 animals may come together during dry seasons or drought. Home range is largely influenced by the abundance of food. Feral hogs (particularly boars) may travel as much as 15 miles in search of adequate food and/or water. Hogs in areas where food is scarce have larger home ranges than those where food is adequate. Therefore, fall and winter ranges are generally larger than spring and summer ranges. Home ranges vary from 0.4 to more than 19 square miles, but normally are 0.5 to 3 square miles. 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. 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. Major disturbances can cause feral hogs to permanently shift their home range several miles away. Infrequent or minor disturbances will cause hogs to move only a short distance, and they will return once the disturbance has passed. Feral hogs usually travel in family groups, or sounders, made up of two or more sows and their young. Boars are normally solitary, joining a group only to breed.

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 seminomadic to locate an abundant source of suitable food. Feral hogs are opportunistic omnivores, eating almost anything and everything they find. They prefer succulent green vegetation (they do not digest cellulose well) along with a variety of animal material, fruit and grain. In the spring they eat grasses, forbs, roots and tubers. In the summer and fall they eat mostly soft and hard mast such as prickly pear cactus, mesquite, guajillo, huisache, grapes, plums, acorns and persimmons. Rhizomes, bulbs and tubers are also important food items during the fall. Winter diets consist mainly of grasses, forbs and agricultural grains such as corn, milo, wheat, oats, rice and soybeans. They also eat peanuts, pumpkins, watermelons, potatoes, cantaloupes and orchard fruit. Shelled corn put out as supplemental feed for wildlife attracts feral hogs and can be a major part of their diet. They readily consume carrion and animal matter, including arthropods (especially beetles), amphibians, reptiles, eggs, birds, small mammals, and the young of wild mammals and livestock. Large feral hogs also may cannibalize pigs and shoats.

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. Feral hogs are opportunistic omnivores; they eat almost anything and everything they find.

Signs

The presence of feral hogs is usually fairly easy to determine. In addition to sighting them, one may find tracks, trails, crawls, rooting, wallows, rubs and scat (droppings).

Hogs root or dig in the ground to find food. Rooted areas can be extensive and cover several acres. If the soil is soft, rooted areas can be as much as 3 feet deep. Feral hogs are persistent and will methodically root an area until the food is depleted. Hogs root in the ground to find food. They can damage suburban yards and golf courses as well as agricultural land. During warm weather feral hogs wallow in moist areas to coat themselves with mud. This helps them stay cool and protects them from insects and the sun. Tracks can be difficult to identify because they are similar to those of deer, sheep and goats. Hog tracks are wider than they are long and shorter than a deer track of the same width. A distinguishing characteristic is the appearance of rounded or blunt toes in hogs as opposed to more pointed toes in deer. Both deer and hog tracks may show dewclaw marks in soft ground. Contrary to popular belief, dewclaws do not determine an animal's sex or age. However, the relative size of a track can indicate an animal's sex or age. During the warmer months, feral hogs create wallows in moist areas. These muddy depressions help the hogs keep cool and coat them with mud that

protects them from the sun and from insects. In hot weather hogs will lie in wallows during the day. Feral hogs consistently use the same trails and crawls, often traveling underneath and through fences when roaming from site to site. Coarse hair found hanging on fence wires is a sign of hogs. Marks from rubbing or tusking on trees or logs along trails also indicate the presence of feral hogs. Rubs are often found near wallows. Rubbing is done to scratch the skin and remove dried mud, hair and parasites. Trees, fallen logs, fence posts, rocks and power poles are commonly used for rubbing. Hogs seem to have a real affinity for rubbing on power poles treated with creosote. Any such poles within a hog's home range will usually have visible rubs. Where there are feral hogs, scat can usually be found. Scat deteriorates quickly and can be highly variable in appearance, which makes identification difficult. Generally, feral hog scat has the same shape and consistency of dog droppings. Examining scat can reveal what the hog has been eating, which is useful when considering whether or not to control hogs. Rubs on trees, logs, posts, poles and rocks indicate the presence of feral hogs.

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. As their populations continue to expand across the state, their damage will increase as well.

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. This is particularly true when drought conditions concentrate large numbers of hogs around a few water sources. 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. Crops such as sorghum, rice, wheat, corn, soybeans, potatoes, watermelon, cantaloupe, pecans and peanuts are often damaged by feral hogs. Hogs not only eat crops, but also root them.

Damage and Disease

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. Feral hogs are often attracted to birthing grounds, where they feed on afterbirth and fetal tissue. In certain areas, feral hogs may cause significant losses to endangered or threatened wildlife species. Hog predation can be hard to detect because hogs often eat the entire animal, leaving little or no evidence.

Tracks, scat and other hog signs that confirm the presence of hogs are usually needed to confirm predation. However, hogs are both predators and scavengers, so even the presence of hogs at a kill site isn't proof that hogs made the kill. Feral hogs prey on livestock and wildlife, and can seriously threaten endangered species. Extensive rooting can destroy native plants and pastureland, which can cause soil erosion.

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, kidney worms, lungworms, stomach worms and whipworms. Hog diseases that could have severe repercussions for agribusiness include swine brucellosis, pseudo-rabies, 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. Swine brucellosis is a bacterial disease of animals and humans. It causes abortions in sows and can cause infertility in boars. It is a threat to the swine industry. It is transmitted through reproductive discharges (semen and afterbirth) and, once infected a hog is a carrier for life. Brucellosis is contagious to humans; chronic symptoms range from severe flu to arthritis and meningitis. Humans can be treated with antibiotics, but there is no cure for livestock.

Pseudo-rabies, a viral disease, attacks the central nervous system and can be fatal to cattle, horses, goats, sheep, dogs, cats, raccoons, skunks, opossums and small rodents. It is not related to rabies and it does not infect humans. Pseudo-rabies is a special concern to swine producers because it causes abortions and stillbirths. Once infected, hogs are lifetime carriers and periodically shed the virus through their noses and mouths. Livestock can be infected by direct contact with infected animals, consuming contaminated feed or water, or contacting contaminated equipment. Vaccinating livestock, particularly swine, may help to curb the spread of the virus. Anthrax is a soil-borne disease that occurs irregularly in Texas, usually where the daily minimum temperature is at least 60 degrees F, where wet periods are followed by long dry periods, and where soils are alkaline or neutral. All mammals, especially ruminants, are susceptible to anthrax. Feral hogs may come into contact with the bacteria while feeding or by interacting with infected animals. Humans can contract the disease from contaminated soil or animals. Vaccines are available for both humans and livestock.

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. It does not affect humans, but humans can spread the virus. There is no known cure. Symptoms include fever and blister-like lesions on the tongue, teats, lips, inside of the mouth, and between the hooves. Many infected animals recover, but are permanently debilitated. The virus can be spread by contact with infected animals and with contaminated feed, water or equipment. Livestock should be vaccinated appropriately, especially if they may have contact with feral hogs. Anyone who handles a feral hog should wear rubber gloves, particularly if there is contact with blood or reproductive organs. Feral hog meat should be thoroughly cooked before it is eaten.

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. Contact the Texas Parks and Wildlife Department for more information about the legal status of feral hogs. 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. Snares can be used to capture hogs as they travel along trails or under fences.

Control Methods

Neck snares restrain hogs with a 12- to 18-inch-diameter loop that is securely attached, via the swivel, to a fence or other firm object, or to a drag. An extension cable at least 3 feet long may be needed to reach posts, trees or other stable structures. The snare loop should be suspended above the ground with wire clips or small gauge metal wire. Leg snares also can be used along hog trails. Leg snares, which are placed on the ground, have smaller loops and are activated when an animal triggers the mechanical throwing arm. 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. Cage traps for feral hogs come in a variety of designs and shapes. Most are constructed of stock panels with a steel pipe or angle iron frame. The primary differences between trap designs are size, portability, door configuration, flooring or roofing. Any trap needs two key elements to function properly – a reliable door and stout enough materials to hold trapped hogs. Most cage traps are constructed of stock panels or heavy, welded wire with a steel pipe or angle iron frame. Designs include drop gate/slide door, rooter/lifter gates and spring/swing gates. Drop gates use a trip wire to trigger the door. Rooter or lifter gates require that the hog use its nose to lift or root open the door. Spring or swing gates use a screen-door type spring to close the door after hogs push it open. Doors or gates can be hinged from the top or the side of the trap. Some trap designs just use paneling fashioned as a funnel or door into the trap. Doors should open in only one direction so hogs can get in, but not out. Floors and/or roofs can be used on traps to ensure that hogs

do not dig underneath, jump out, climb over, or otherwise escape. The most popular styles of cage traps are corral traps, panel traps, box traps and portable traps. This circular trap has overlapping panels that funnel the hogs into the trap but don't allow them to exit. There are many kinds of cage traps. The main differences are in size, portability and door configuration. Door designs include drop/slide gates, rooster/lifter gates, and spring/swing gates. A successful trapping program requires that traps be placed in areas where feral hogs are active and that they be pre-baited for several days to get hogs used to entering the traps. This is accomplished by wiring the door or gate open until hogs are no longer wary of the trap. Hogs can be baited with fermented corn or grain, whole corn, livestock pellets or cubes, vegetables, fruit or carrion. Once hogs are entering the trap without fear, the trap door can be set to capture them. Traps should be checked daily and from a distance when possible. Unnecessary activity around the trap site may cause hogs to avoid it. Be careful when approaching traps that contain hogs as they will become excited. With multi-catch traps, a decoy animal can be left in the trap to help entice other hogs to enter. Decoy animals should be fed and watered daily. Trapping should continue until the desired number of feral hogs has been captured or until no further hog activity occurs at the trap site. 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. Hunting techniques for feral hog are essentially the same as those for white-tailed deer. Stand hunting or still hunting can be conducted in baited areas or in areas with abundant fresh hog sign. As feral hogs are attracted to supplemental feeding sites and deer feeders, these can be prime areas for Feral hogs can be hunted year-round in Texas. Many hunters use dogs trained to track hogs. hunting feral hogs. However, feral hogs are very intelligent and can be a challenging foe. Intensive hunting may cause feral hogs to shift their home range or become more nocturnal. When this happens, hogs can be hunted at night using a spotlight with a red filter. Contact the local game warden for permission first, because there are laws regarding the use of a spotlight. Trained dogs can be used to locate individual hogs or small groups of hogs. In fact, using dogs to trail and bay hogs is a hunting method that has been around for many years. Success will depend on the experience of the dogs and the hunter. Most hunters use tracking dogs to find and bay hogs, while relying on catch dogs to hold hogs once bayed. This method should be used only by skilled hunters with well-trained dogs. Tragically, the major disadvantage to this technique is that dogs are often injured or killed by hogs.

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.

Feral hogs are well established in Texas, and because of their adaptability, reproductive capability, and skill at survival, they are here to stay. The value of feral hogs is a matter of opinion. Landowners suffering from feral hog damage may be very eager to get rid of them. Hunters look forward to having them show up on their hunting grounds. Entrepreneurs enjoy the economic returns from feral hog hunting fees and the sale of captured hogs. Biologists have ecological concerns as feral swine interact with and harm native wildlife species. Whatever one's opinion may be, the management of feral hogs should be part of any property management plan.