WEC277

UF UNIVERSITY of FLORIDA
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Wild Hogs in Florida: Ecology and Management[1]

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History, Distribution, and Abundance

Florida's wild hogs (Figure 1) are often referred to as feral hogs or swine and are of three general types. These include free-ranging swine that come from domesticated stock, Eurasian wild boar, and hybrids of the two. Although technically the term "feral" refers to free-ranging animals descended from domesticated stock, all wild hogs are typically referred to as feral in Florida, whether they descend from wild boar or from domesticated stock. Likewise, all wild hogs in Florida are considered the same species, *Sus scrofa*. Wild hogs are in the family Suidae (true wild pigs), none of which are native to the Americas. The only native pig-like mammal found in the United States is the collared peccary or javelina (*Tayassu tajacu*; Figure 2), an animal not found in Florida. Javelina are not true pigs; they are in the family Tayassuidae, and are about half the size of typical wild hogs.

It is believed that hogs were first brought to Florida, and possibly the United States, in 1539, when Hernando de Soto brought swine to provision a settlement he established at Charlotte Harbor in Lee

Figure 1. A wild hog foraging in a field. These animals are true pigs and not native to Florida or North America. Credits: Photo by M.S. Smith.

County. However, it is possible that hogs had been brought to the same site in 1521 by Ponce de Leon during a brief visit. During the next four centuries, explorers and settlers brought pigs with them throughout Florida. Many of these animals were given to or stolen by Native Americans, who expanded pig numbers and distribution in the state. Europeans and Native Americans alike often raised their swine in semi-wild conditions (at least until the mid-1900s when open range ended and it became illegal) where hogs were allowed to roam freely and only rounded up when needed. Many of these animals

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and those escaping from captivity established feral populations throughout Florida. These feral populations have been further supplemented through deliberate releases of hogs in many areas by private individuals and the Florida Game and Freshwater Fish Commission to improve hunting opportunities (although the state no longer does this).

Figure 2. Although they look similar to wild hogs, peccaries are not true pigs. Not found in Florida, they are the only native, pig-like animal in North America. Credits: U.S. Fish and Wildlife Service/Photo by T. Stehn.

Eurasian wild boar were first released in the United States in New Hampshire in 1886. Boar were then released in New York (1900), North Carolina/Tennessee (1912), Texas (1919), Washington State (1981), and possibly other locations to provide a new, huntable big game species, and to increase the sporting and trophy value of feral hogs through hybridization. Although most were released in enclosed areas, many escaped and readily hybridized with local feral hogs. A few Eurasian wild boar and many hybrids naturally dispersed to areas around release sites, including neighboring states. Hybrids have been trapped and moved to many parts of Florida by private individuals. In addition, the Florida Game and Freshwater Fish Commission trapped and released feral hogs and hybrids in many areas to control hog-related problems in some areas and improve hunting opportunities in others. There are not believed to be any free-ranging, pure Eurasian wild boar in Florida, only feral hogs and hybrids.

Wild hogs are now found in every county in Florida and in at least 35 states and Canadian provinces, including most of the Southeast. Florida's wild hog population is second only to Texas's; the state is estimated to have more than 500,000 wild hogs in a relatively stable population (there are from 1 to 2 million wild hogs in the southeastern United States). Some of the highest hog population densities in Florida can be found north and west of Lake Okeechobee in areas with large forested tracts, dense understory vegetation, and limited public access. Hog numbers tend to be lower in areas with intensive agriculture and urbanization, and little water.

Description

All wild hogs are stocky, hoofed mammals with relatively short legs, long snouts ending in a disk, and long canine teeth that appear as tusks. Feral hogs resemble domestic hogs, but are usually leaner and have developed different behaviors that promote their survival in the wild. Eurasian wild boar stand slightly taller but are approximately the same weight as feral hogs, and typically have longer hair (especially bristles), a leaner appearance, larger heads, longer snouts, longer, straighter tails, and smaller, more upright ears. Coloration of feral hogs and Eurasian wild boar can vary. Feral hogs typically have solid-colored, black, white, and/or reddish-brown hair either in solid or mottled patterns across the body (Figure 3). The hair of Eurasian wild boar is typically brown at the base and light-tipped over most of the body, with some areas having brown or black, solid-colored hair. They also often have white-tipped hairs on the head forming a saddle-like patch of hair or streak of hair around the mouth. Hybrids have various combinations of feral hog and Eurasian wild boar characteristics. Appearance alone can be deceiving and is not considered a reliable means of

determining whether a wild hog is of Eurasian wild boar descent, a feral hog, or a hybrid.

Wild hog size and weight are variable, and depend on genetics and local conditions. Typically, male hogs (called boars) are larger than females (called sows). Average adult males may weigh 200+ pounds, stand 3 feet at the shoulder, have tails reaching 12 inches, and be almost 5 feet from the tip of the tail to the tip of the snout. However, males greater than twice this size have been recorded. Hogs have 4 continually growing, self-sharpening tusks (2 in the upper and 2 in the lower jaw; upper and lower tusks rub against each other, which keeps them sharp). Tusks in females are relatively small, while in males they become quite pronounced and have trophy value. Male hogs generally possess a thick hide on their shoulders (up to 3/4 of an inch thick) known as a hog shield that protects them during fights. All wild hogs have an excellent sense of smell and good hearing, but relatively poor vision. Wild hogs use a variety of vocalizations, including an alarm grunt given by the first hog to sense an intruder that causes a flight response by the rest of the herd. Other vocalizations are similar to those of domesticated pigs. Wild hogs also communicate through scent posts that are often also used for body scratching and rubbing. Boars also "tusk" small trees, frequently pines, scraping off the outside bark with their tusks. This behavior may play a part in some type of dominance display. Such actions can seriously damage the rubbed objects, often trees (Figure 4). Hog sign includes tracks (Figure 5), trails, wallows, rooting, rubbing (Figure 4), and scat.

Figure 3. Wild hogs occur in a variety of colors. Credits: Photo by J. Allen.

Figure 4. Wild hogs rub objects, often trees, for body scratching, and boars may "tusk" small trees as part of a dominance display. Credits: U.S. Department of Agriculture Photo.

Habitat Relationships

Hogs use a variety of habitat types in Florida, from flatwoods, upland pine, and bottomland hardwood forests to coastal areas, marshes, swamps, and more open agricultural lands. However, hogs prefer large forested areas with abundant food, particularly acorns, interspersed with marshes, hammocks, ponds, and drainages. Good hog habitats have plenty of cover in the form of dense brush and limited human disturbance. Dense cover is used as bedding areas and provides protection from predators and hunters (Figure 6).

The absence of water or wet soil conditions can limit the use of an area by hogs. Wet conditions are necessary for hog wallowing. Hogs have relatively poor physiological cooling mechanisms and keep from overheating by wallowing in mud and water (Figure 7): particularly important in Florida's warm climate. Wallowing also helps hogs rid themselves of ticks, fleas, lice and other external parasites. They will wallow in almost any wet area. In cooler weather, hogs may seek open areas that allow maximum warming from the sun. Seasonal changes in habitat use are typically related to food availability, with hogs preferring areas containing abundant hard mast (such as acorns and hickory nuts; Figure 8) and, if hard mast is unavailable, soft mast such as plums and other fruits.

Wild hogs are omnivorous, opportunistic feeders. The list of foods hogs eat is diverse and includes grass, forb, and woody plant stems, roots, tubers, leaves, seeds, and fruits, fungi, and a variety

Figure 5. Wild hog feet and tracks are similar to those of domesticated pigs. Typically, the rear toes make little or no mark on the ground. Credits: Photos by C.L. Giuliano.

of animals including worms, insects, crustaceans, mollusks, fish, small birds, mammals, reptiles, and amphibians. They may occasionally consume carrion (dead animals). Wild hogs consume far more plant than animal material, and their opportunistic tendencies often lead them to forage in agricultural lands and forest plantations where they can cause significant losses of crops, including corn, rice, sorghum, melons, peanuts, forage grasses, grains, various vegetables, and tree seedlings. Wild hogs will

Figure 6. Wild hogs prefer to live in large tracts of forest with abundant food, dense understories, access to water, and little human disturbance. Credits: U.S. Department of Agriculture/Photo by W. Boyer.

Figure 7. Wild hogs wallow to stay cool and reduce parasite infestation. Credits: U.S. Department of Agriculture Photo.

Figure 8. Although they are opportunistic and omnivorous feeders, the favorite food of wild hogs is acorns. Credits: U.S. Department of Agriculture/Photo by P. Wray.

also readily exploit game feeders placed for deer, turkey, and other wildlife, and may destroy wildlife food plots by rooting (digging for foods below the surface of the ground).

General Biology

In Florida, wild hogs breed year round with peaks in the breeding cycle during fall and spring. Breeding activity includes courtship behavior, males fighting to achieve dominance and access to mates, and copulation. Most hogs are sexually mature at 6 months, but they typically do not breed until they are a year old, and then only if they are well-nourished. Sows produce a "nest," which is usually a shallow depression in the ground with or without vegetative nesting material, located in a shaded, upland site. Hog pregnancies last about 115 days. They can produce (farrow) 2 litters of 1–13 (usually 5–7) piglets per year, with the young usually born in a 1:1 male:female ratio. Piglets remain in the nest for 3 weeks, during which time they are frequently nursed by the sow. Piglets then begin to move with the sow away from the nest and progressively rely less on nursing for food. When sow nutrition is poor, reproduction may be reduced or delayed, and sows have been known to eat their young (Figure 9). Typically, boars are solitary animals except when breeding. However, several sows and their offspring often travel in groups called sounders.

Although they breed much earlier, it may take 3–5 years until hogs are fully grown. Under good conditions, wild hogs usually live 4–5 years, with some living 8+ years. Hog mortality is greatest during the first 6 months of life, with predation, accidents, and starvation as leading causes of death during this time. As adults, hogs typically have higher survival rates, with hunting, a wide variety of diseases and parasites, and starvation as leading causes of mortality. Humans are the main predators of wild hogs, but large carnivores such as alligators, black bears, and Florida panthers may be capable of preying on adult animals (Figure 10). Piglets are also preyed upon by smaller predators including foxes, coyotes, and bobcats. When conditions are favorable, hog reproduction exceeds mortality leading to growing and overabundant populations (Figure 11).

Wild hogs typically range over 450–750 acres, but may range wider in search of food. During the cooler months of the year, hogs may be active and feed during both day and night. However, if hunting pressure or temperatures are high, they will seek

Figure 9. A female wild hog in poor condition forages along a road. Poor nutrition will lead to lower reproductive success. Credits: U.S. Department of Agriculture/Photo by T.C. Crocker.

Figure 10. Humans are the primary predator of adult wild hogs. However, the Florida panther and other predators can easily prey upon younger animals. Credits: U.S. Fish and Wildlife Service/Photo by G. Gentry.

cover during the day, and feed and be most active at night. Seasonal changes in activity are also related to breeding, with sows being less active and traveling over significantly smaller areas when piglets are in the nest, and males traveling over considerably larger areas in search of mates.

Problems

The opportunistic and omnivorous tendencies of wild hogs lead to many conflicts with people and wildlife. With hard mast, including acorns, as their preferred food, hogs directly compete with many popular game animals, including deer, turkeys, and squirrels (Figure 12). This competition is considered a significant limiting factor for populations of these native species in some areas. In addition, hogs may consume the nests and young of herpetiles (including turtles; Figure 13), ground-nesting birds, and

Figure 11. Feral hogs typically breed at one year of age. Piglets stay in the nest for a few weeks, and then begin moving with the sow. When conditions are good, hog production often exceeds mortality leading to overabundant populations. Credits: Photo by W.M. Giuliano.

mammals (including deer fawns). Wild hogs have also been known to consume young domestic livestock including poultry, lambs, and goats.

When natural foods are scarce or inaccessible, hogs will readily forage on almost any agricultural crop and feed set out for livestock and wildlife, leading to significant losses. Wild hogs will also feed on tree seeds and seedlings, causing significant damage in forests, orchards, and plantations. In Florida and the Southeast, this may be a serious impediment to regenerating important long-leaf pine forests (Figure 14).

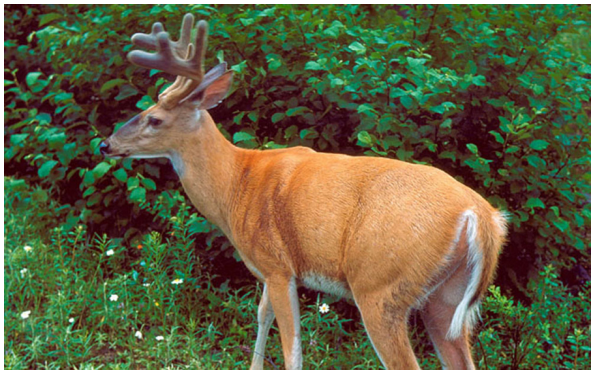

Figure 12. Wild hogs may compete with native wildlife such as white-tailed deer for food. Credits: U.S. Department of Agriculture/Photo by K.W. Gale. Credits:

Hogs rub objects, often trees, to scratch themselves. In addition, males will often "tusk" small trees, scraping off the bark with their tusks, in what is thought to be some type of dominance display. Such

Figure 13. Hogs often prey upon the nests of ground nesting wildlife, including turtles, leading to significant nest losses. Credits: National Oceanic and Atmospheric Administration/Department of Commerce Photo. Credits:

Figure 14. By eating seeds and seedlings, wild hogs can inhibit forest regeneration. Credits: U.S. Department of Agriculture/Photo by W. Boyer.

actions can seriously damage the rubbed objects (Figure 4).

In addition to the effects of consuming, knocking down, rubbing, and trampling large amounts of native vegetation and crops, the rooting behavior of hogs also causes significant damage. Rooting (digging for foods below the surface of the ground) destabilizes the soil surface, which can lead to erosion and exotic plant establishment; uproot or weaken native vegetation; and damage lawns, dikes, roads, trails, and recreation areas (Figure 15). Hogs have also been known to damage fences and other structures. Finally, hogs' wallowing behavior destroys small ponds and stream banks and can lead to declines in water quality (Figure 7).

Another area of concern is the potential for wild hogs to serve as reservoirs for many diseases and parasites that may affect native wildlife, livestock,

Figure 15. Rooting by wild hogs can lead to erosion and water quality problems, and the destruction of native vegetation around ponds and in the forest. Credits: Top Photo by W.M. Giuliano; Bottom Photo by W. Frankenberger.

and people. Hogs have been known to carry dozens of such pathogens, including cholera, pseudorabies, brucellosis, tuberculosis, salmonellosis, anthrax, ticks, fleas, lice, and various flukes and worms. Although these pathogens and parasites typically do not present a serious threat to people, they do threaten livestock. Millions of dollars are spent each year to keep livestock safe from diseases and parasites spread by wild hogs (Figure 16). Finally, hogs can be dangerous. Although wild hogs usually prefer to run and escape danger, if they are injured, cornered, or with young, they can become aggressive, move with great speed, and cause serious injury (mainly with their hooves and tusks; Figure 17).

Figure 16. Wild hogs may be a reservoir for diseases and parasites that can affect people, livestock, and wildlife. Credits: Photo by W.M. Giuliano.

Management, Hunting, and Other Control Measures

On private land in Florida, wild hogs are considered domestic livestock and the property of the landowner where they are found. With landowner permission, there is no closed season, bag or size limit when hunting in these areas. Hunters often pay $100–$2,000 to harvest a trophy wild hog, providing an economic incentive for hog introductions and management. On public lands, hogs have various classifications, and depending on the property may require licenses and permits to be legally taken during specific seasons.

In the past, state and private hog management included removal of hogs from public lands and other areas with sensitive ecological communities, and the introduction of animals to other areas to maintain or establish huntable populations (Figure 18). While private individuals may still introduce animals in enclosed areas for hunting, most management now focuses on controlling hog populations. Because hogs are such prolific breeders, mortality may not be able to balance hog production, and therefore further stocking of hogs in Florida should be avoided. It would simply increase the multitude of problems associated with wild hog populations. If stocking is desired on private, fenced property, only castrated males should be considered.

In good habitat, it is unlikely that any amount of hunting or other population control will eradicate wild hog populations, but it may be possible to limit further population expansion by using a combination

Figure 17. Wild hogs can be aggressive, and long, sharp tusks make them dangerous. Credits: Top Photos by J. Dunlap and M. Ludlow; Bottom Photo by W. Frankenberger.

of methods on a sustained basis. Wild hog control methods include hunting, various trapping methods, shooting, and exclusion. Toxicants and repellents have been suggested as viable means of controlling or deterring hog populations. However, none are registered for use in the United States. Before undertaking any hog control measure, review local laws. The Florida Fish and Wildlife Conservation Commission (http://myfwc.com/) and USDA-APHIS

Figure 18. Trapping of wild hogs has been used to reduce populations and associated damage in some areas and supplement hog populations for harvest in others. Credits: Photo by J. Allen.

Wildlife Services (http://www.aphis.usda.gov/wildlife_damage/) are excellent sources of such information.

Hunting is an important control method for wild hogs because it provides recreational opportunities, is inexpensive, and can be useful at reducing numbers of adult animals. However, hogs are intelligent animals and can be challenging quarry. Many hunters consider large boars with prominent tusks to be a desirable trophy, and the lean meat is excellent fare. Typically, hogs are hunted from a stand over bait such as corn or other grains (although this may not be allowed on public lands), but they can also be stalked (keep the wind in your favor). Hunting may also involve trained dogs to locate hogs and hold them at bay. However, dogs should be properly trained to avoid injury from hogs. Harvested animals should be field dressed as one would a deer, and gloves should be worn to reduce the possibility of disease transmission. Hog remains should be kept away from domestic animals to avoid disease transmission and buried or incinerated (landfills may not accept them).

Trapping is usually a better method of controlling hog numbers than hunting, especially when the animals are active at night. While there are several types of traps (including cage, leg-hold, and snare) that can be used to capture hogs, cage traps are most effective because they can capture more than one hog at a time. Regardless of type, traps should be well constructed: hogs are powerful animals and easily excited when approached.

Figure 19. Baited hog traps can be an effective control method and come in various shapes and sizes. They should be sturdy enough to contain large hogs and have tall walls or a wire roof to prevent hogs from climbing or jumping out. Credits: Top Photos by W.M. Giuliano; Bottom Photo by S. Barlow.

Cage- or corral-style live traps are the most commonly used types (Figure 19). Such traps should be located in shaded areas with large, active hog populations. This type of trap includes single- and multi-capture designs with various door/gate styles, including swinging or sliding doors and lift gates. These traps can be made from a variety of materials, however, steel fence posts with 4-inch by 4-inch, welded 12 gauge (or heavier) wire fencing works well. Larger traps (often as large as ten feet square) will allow more hogs to be captured at once. Doorframes can be made of wood or steel, with doors made of plywood (more than 3/4-inch), steel, or wire mesh. Doors should be at least two feet by two feet. They should only open inward or upward (for sliding doors), and they should close with the use of heavy springs. Swinging doors are better than sliding doors because once an animal is caught, other animals can enter by pushing through the door, and hogs often learn to pry open sliding doors with their snouts. Doors should close down on a bar or cross member to prevent hogs from lifting them open. A trip wire placed in the rear of the trap is often used to trigger the door. Bait should be placed at the rear of the trap, with the trip wire between it and the door. Wire fence, attached to the walls, should be put on top (particularly if the trap has short walls) to prevent hogs from going over the top. Smaller, portable traps have also been used successfully (Figure 20). However, their size typically limits the number of captures on a single occasion to one or a very few animals. Trap construction plans can be found at sites listed in the Additional Information section at the end of this document.

Figure 20. Small, portable traps can be effective by allowing you to change trapping locations. However, they are limited in the number of animals that can be caught on one occasion. Credits: Photo by M.S. Smith.

Traps should be prebaited for several days before actual trapping begins. Prebaiting involves baiting traps but locking the door open for several days so that hogs have time to find the bait and grow accustomed to entering the trap. Prebaiting enables the capture of multiple animals at one time. Automatic feeders may be placed over the trap to

dispense bait without introducing human scent, a major deterrent to hogs entering the trap. Common baits include grains such as corn, oats, and barley (often soaked in water), vegetables, livestock feed, and carrion. It may take several days for hogs to start coming to bait as they range over large areas. Once hogs begin visiting traps, bait must be replenished daily so that hogs will continue to visit the trap and not move on to areas with more food. At times and places with abundant natural foods such as acorns, this type of trapping may not be effective because preferred, natural foods will reduce the attractiveness of bait to hogs. To keep livestock from eating bait and springing traps, barbed wire fencing can be used around traps (be sure hogs can get under it). In addition to bait, live decoy hogs can be placed inside traps to attract others. These hogs may be placed in a smaller pen within the trap. Such animals should be fed and watered as needed. Traps should be checked daily and from a distance (to avoid exciting the animals, which can lead to injuries and damage to traps; Figure 21).

Leg snares and steel leg hold traps (No. 3 or larger) have been used to capture hogs, but they are not recommended. They are less effective than other methods, and they are illegal in Florida and many other areas without a special permit. These are typically placed on active travel routes such as where hogs regularly pass under a fence, securely fastened to a heavy drag (for example, an eight-foot-long log), tree, or fence post. The trap should be sturdy enough to handle a large hog. Such traps are not generally as effective as other methods because they can only capture one animal at a time. Further, such traps often capture and injure non-target animals, such as livestock, dogs, foxes, etc. Before using such methods, individuals should check with the Florida Fish and Wildlife Conservation Commission for applicable regulations and permits. Captured hogs should be kept away from domestic animals to avoid disease transmission and euthanized as soon as possible. Bury or incinerate hog remains immediately.

Shooting at night may be an effective control measure on private lands when hunting and other human activity stimulate hogs to become nocturnal, and trapping is ineffective or incomplete. Spotlights with red filters and night vision optics are valuable aids when using this method. Before using such methods, individuals should check with the Florida Fish and Wildlife Conservation Commission for applicable regulations and permits.

Figure 21. Traps should be checked from a distance to avoid alarming the animals, which can cause injury to the hogs and damage traps. Credits: Photo by S. Barlow.

Excluding hogs using fencing can be an effective but expensive control option for relatively small areas such as a garden (Figure 22). However, hogs are intelligent and resourceful animals and often find ways through many types of fence. Chain link fences or heavy-gauge hog wire buried at least 12 inches under the ground with heavy supports and posts, and various types of mesh or multi-stranded electric fence provide the best results.

Figure 22. Fencing can be an effective method of protecting small areas from wild hog damage. Credits: Photo by W.M. Giuliano.

Additional Information on Wild Hogs

http://www.wildflorida.org/critters/hog.asp

https://agrilife.org/texnatwildlife/feral-hogs/

http://icwdm.org/

http://ector-co.tamu.edu/publications/l1925.pdf

http://www.noble.org/Ag/Wildlife/FeralHogs/

http://feralhogs.tamu.edu/