FOR-160

# Monitoring for and Controlling Wild Pig Populations in Kentucky

University of Kentucky
College of Agriculture, Food and Environment
*Cooperative Extension Service*

*Elizabeth Evers, Matthew T. Springer, Forestry and Natural Resources*

Wild pigs (*Sus scrofa*) are widely considered to be the most destructive invasive species in the United States. They cause large amounts of agricultural damage, compete with native wildlife for resources, alter wildlife habitat, and threaten biological diversity. The United States Department of Agriculture (USDA) estimates that wild pigs cause $1.5 billion in damages and control costs in the United States each year, with at least $800 million being direct damage to agriculture. Due to their lack of predators, diverse diets, and quick reproductive abilities, they spread quickly, overtaking native species and their habitats.

Wild pig establishment in the southeastern United States dates back to the 1500s. Early European explorers brought domestic pigs with them as livestock for their settlements. The historic practice of allowing pigs to range freely encouraged the spread and establishment of wild pigs throughout the southeastern United States. However, wild pig populations did not naturally expand into Kentucky.

Wild pigs in Kentucky are the result of released domestic pigs and hybrids of domestic and Eurasian boars. In Kentucky, wild pig populations generally arrive to an area in four ways: 1) domestic pigs escape into the wild, 2) pigs are intentionally released for hunting purposes, including translocated pigs that have always been wild, 3) domestic pigs are allowed to free range due to inadequate enclosures; and 4) pet potbellied pigs are abandoned.

Eurasian boars, also referred to as European wild hogs or Russian boars, differ in appearance from wild pigs. Eurasian boars typically have longer legs, a larger head, and a longer snout. The young are reddish brown with black longitudinal stripes. A mature animal is black in color. Eurasian boars have continuously growing tusks, in addition to multiple splits at the ends of the hair shafts and a mane from the neck to the base of the tail. There are no pure Eurasian boars in Kentucky.

Sounder of wild pigs.

## Biology

### Appearance

Wild pigs show significant variability in color, body shape, and size. Their size and color depend on their breed and nutrition during development. Overall, most wild pigs are smaller and shorter then domestic pigs due to higher nutritional levels for the domesticated pigs. Most wild pigs are black or brown, but any color combination can occur. Piglets can be striped, spotted, or solid in color. In Kentucky, adult pigs weigh from 75 to 250 pounds. On average, they stand three feet in shoulder height and are between five and six feet in length (from the tip of the nose to the end of the tail) as adults. Males are typically larger than females. Exceptionally large males can be more than seven feet in length and more than three feet in shoulder height, and they can weigh over 500 pounds. These exceptionally large wild pigs are typically captive-reared pigs that were released or escaped into the wild, but they are generally a rare occurrence. Potbellied pigs have dark skin with scarce hair, short ears, and a short snout. They have short tails that are attached high on the rump. They are 14 to 18 inches in height and can weigh up to 150 pounds. Male potbellied pigs can have long hair on the nape of their backs, giving the appearance of Eurasian boars.

### Reproduction

Wild pigs become reproductively active at 6 to 10 months of age. Their gestation period is 115 days, allowing a single pig to raise two litters of four to eight piglets each in a single year. This reproductive strategy allows wild pig populations to grow rapidly within an extremely short period of time.

### Diet

The diet of wild pigs is classified as omnivorous, which means that they can—and will—eat almost any organic substance that is available. As a result, wild pigs can quickly establish themselves due to their ability to adapt to almost any food source. Vegetation dominates a pig's diet, but animal prey is also common.

Wild pigs primarily feed by rooting, or turning over the topsoil in search of roots, tubers, and invertebrates. They use an incredible sense of smell to locate food. In addition to rooting, wild pigs will graze, scavenge, and predate. Prey can include deer fawns, turkey, quail, grouse, woodcock, amphibians, and various ground-nesting songbirds. If they are able to catch it, it is possible they will eat it.

Seasonal changes in their diets greatly influence their selection of habitat. In the fall, for example, hard mast (e.g., acorns and hickory nuts) is a very common food item and causes them to compete directly with many native species that also rely on that food source. Likewise, wild pigs consume the eggs and chicks of ground-nesting birds in the spring. Unfortunately, the feeding habits and associated behaviors of wild pigs often result in extensive damage to agriculture, ornamental plantings, native wildlife, and their habitat. It is this adaptability, coupled with continued illegal releases for hunting opportunities, that has resulted in rapidly emerging populations throughout the United States.

### Social Structure

Multiple generations of related females, or sows, and piglets live in groups called sounders. By living in these sounders, pigs employ a safety-in-numbers strategy. Males leave the sounder around 16 months of age. These sub-adult males may associate in smaller familial groups, while mature males, or boars, tend to be more solitary in nature. Boars temporarily join sounders to breed.

### Behavior

Wild pigs have excellent hearing and sense of smell, and they typically avoid human contact. When faced with danger, their general response is to run away. However, if cornered or defending their young, wild pigs can be aggressive and very dangerous.

### Wild Pig Diseases and Potential Influences on Livestock and Humans

**SWINE BRUCELLOSIS**

*What is it?*

Brucellosis is a bacterial disease in feral swine caused by *Brucella suis*. In the United States, biovars 1 and 3 have been identified in feral swine.

*How is it transmitted?*

In swine, *B. suis* transmission occurs primarily through sexual contact, but it can also be transmitted through mucosal membranes, damaged skin, or ingestion of infected tissues.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine, infection can cause abortion, lameness, hind limb paralysis, inflamed testicles or mammary glands, and abscesses in various tissues or extremities. However, the domestic swine industry is considered brucellosis free. Asymptomatic infection with *B. suis* has been reported in cattle.

*Can it be transmitted to humans?*

Yes. Humans become infected when blood, body fluids, or tissues from an infected animal come in contact with the eyes, nose, mouth, or cuts in the skin. Brucellosis in humans may cause fever, excessive perspiration, headache, muscle and joint pain, or fatigue.

**PSEUDORABIES**

*What is it?*

Pseudorabies (PRV), also called Aujeszky's disease, is a viral disease caused by suid herpesvirus 1. Feral swine are considered the reservoir for PRV in the United States, and the virus is widespread in feral swine populations.

*How is it transmitted?*

In swine, PRV is primarily transmitted through sexual contact, nose-to-nose contact, or ingestion of infected tissues, but transmission can also occur via aerosolized virus, or contaminated equipment and clothing. Infected feral swine are long-term carriers.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In young swine, infection can cause death, respiratory distress, and paddling. Infected adult swine may not display clinical signs, or they may abort fetuses. In livestock (cattle and sheep) and companion animals (dogs and cats), infection is almost always fatal. The domestic swine industry is considered pseudorabies free.

*Can it be transmitted to humans?*

No.

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## Monitoring for Wild Pigs

### Signs

**Tracks.** Wild pig tracks are very similar to white-tailed deer tracks. It can often be difficult to differentiate between the two. However, deer tracks are spear-shaped, with dewclaws directly in line with the hoof print, whereas pig tracks are slightly rounder and wider, with dewclaws angled outside of the hoof print.

**Wallows and Rubs.** Wild pigs do not sweat, and they rely on shaded bedding areas and water to stay cool, especially during hot summer months. They stay cool and rid themselves of biting insects by wallowing, or rolling in mud and water (Figure 1). Trees near these wallows will become coated with mud as pigs rub off the mud and parasites. Because pigs are one of only a few species that have this behavior, finding trees with mud rubbed on them is often indicative of wild pig presence.

**Scat.** Scat can vary in shape and consistency, depending on the diet and the season of the year. Droppings are often round or tubular and contain grasses, hard mast, and other plant material. They mostly resemble dog feces with bits of grains, acorns, hair, or feathers.

**Rooting.** Rooting damage often resembles the effects of a garden tiller. It can cover a large area and cause extensive damage to the field or crop (Figure 2).

**Trail Cameras.** Trail cameras, particularly those baited for deer, may be useful in detecting wild pigs. Any images of pigs on trail cameras in Kentucky should be reported to the Kentucky Department of Fish and Wildlife Resources (KDFWR) or USDA Wildlife Services. See the section below on reporting wild pigs for more details.

**Figure 1.** Feral hog wallow.

**Figure 2.** Rooting damage.

## Damage from Pigs

Wild pigs are an exotic, invasive species that poses serious threats to Kentucky wildlife, wildlife habitat, and agriculture.

### Wildlife

Wild pigs directly compete for food and cover with many other species of wildlife, including deer, wild turkey and quail. Much to the dismay of our sportsmen and women, wild pigs displace white-tailed deer and wild turkey, negatively affecting hunter harvest. Deer and turkey cannot compete with wild pigs. When pigs are present, deer and turkey leave the area. Pigs prey on eggs and chicks of ground-nesting birds, such as turkey, quail, grouse, woodcock, and various songbirds. Wild pigs are especially fond of acorns, which many native species of wildlife rely on as a major food source in the fall. Pigs also destroy, eliminate and prevent the re-establishment of valuable native plants and animals, including threatened and endangered species.

### Habitat

Habitat loss and degradation is a major cause of decline for many wildlife species. The rooting and trampling behavior of wild pigs disrupts native plant communities and furthers the spread of invasive species. Wild pigs destroy forests by pulling up tree seedlings, eating acorns, and uprooting plants. They create wallows and degrade wetlands through siltation and fecal deposition (Figure 3). Considered to be "ecosystem engineers" due to their ability to change their environment and damage native ecosystems, wild pigs cause a decrease in biological diversity and facilitate the spread of invasive species. These pigs also alter the water quality of wetlands through fecal deposition and wallowing. The increase in turbidity and siltation creates unfavorable conditions for many aquatic species.

*Wild Pig Diseases, continued*

#### LEPTOSPIROSIS

*What is it?*

Leptospirosis is a bacterial disease in feral swine that is caused by members of the spirochete bacteria *Leptospira interrogans*, most commonly serovars *bratislava* and *pomona*.

*How is it transmitted?*

Infectious leptospires are transmitted through direct contact with contaminated urine or reproductive tract fluids, or through indirect contact with contaminated lakes, creeks, or mud.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine, infection can cause abortion, fever, and a possible rash; however, infected feral swine may not show signs and still shed infective leptospires. Clinical signs of leptospirosis are similar in cattle and other livestock species.

*Can it be transmitted to humans?*

Yes. Humans may become infected through direct contact with contaminated urine or indirectly through contaminated water that comes in contact with the skin, eyes, or mucosal membranes. Leptospirosis in humans can cause fever, headache, muscle aches, vomiting, jaundice, and diarrhea.

#### TULAREMIA

*What is it?*

Tularemia, also called rabbit fever or deer fly fever, is a bacterial disease caused by *Francisella tularensis*.

*How is it transmitted?*

The bacteria are transmitted through the bites of fleas, ticks, and other arthropods that have fed on infected wildlife; inhalation of contaminated particles; skin contact with infected animals; or ingestion of contaminated water.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine and other susceptible livestock species such as cattle and sheep, infection can cause fever, weakness, and enlarged lymph nodes when associated with a vector bite.

*Can it be transmitted to humans?*

Yes. Tularemia spreads to humans through insect bites or direct exposure to an infected animal. Depending on the exposure route, tularemia in humans can cause skin ulcers at the site of a vector bite, inflammation of the eyes, sore throat, tonsillitis, cough, chest pain, and difficulty breathing.

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### Agriculture

Wild pigs cause extensive damage to agricultural crops, food plots, and hayfields. They can destroy many acres overnight, devastating agricultural producers. Pigs transmit diseases to livestock, kill young livestock, and consume and contaminate livestock feed. Their rooting

**Figure 3.** Habitat degradation caused by wallow.

behavior can also create holes or ruts in fields that damage farm equipment and cause soil erosion.

## Disease

Wild pigs are among the most active carriers of wildlife-related diseases in the United States. Biologists have identified at least 45 different parasites and diseases that are transmissible by wild pigs, and these threats extend far beyond native wildlife. In particular, wild pigs are common carriers of the viral disease pseudorabies and the bacterial infection swine brucellosis, both of which can result in reproductive failure in domestic swine. As a result, just one transmission of either disease from a wild animal to a domestic one could have serious economic impacts on domestic swine production. Swine brucellosis can also be transmitted to humans through the handling of the reproductive tract of an infected female. The USDA has confirmed the presence of both pseudorabies and swine brucellosis in wild pigs in Kentucky. Some of the diseases known to be carried by wild pigs and their potential ramifications for livestock and humans are discussed further in the "Wild Pig Diseases" sidebar.

*Wild Pig Diseases, continued*

### E. COLI

*What is it?*

*Escherichia coli* is a ubiquitous bacterium found in the intestines of humans and animals. Some strains are pathogenic and can cause food poisoning in humans.

*How is it transmitted?*

Transmission of *E. coli* occurs through ingestion of fecal-contaminated material.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine and other livestock species, no symptoms may be visible, or the bacteria can cause fever, diarrhea, and weakness.

*Can it be transmitted to humans?*

Yes. Humans can become infected by ingesting food contaminated with small amounts of fecal material. Infection with pathogenic *E. coli* can cause fever, abdominal cramps, diarrhea, or in some cases, death.

### SALMONELLA

*What is it?*

Salmonellosis is a disease caused by infection with *Salmonella* bacteria. It is one of the most common foodborne diseases.

*How is it transmitted?*

Transmission occurs through ingestion of *Salmonella* bacteria.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine and other livestock species, no symptoms may be visible, or the bacteria can cause fever, diarrhea, and weakness.

*Can it be transmitted to humans?*

Yes. Humans can become infected by eating contaminated food that has not been completely cooked or has become contaminated after preparation. Salmonellosis in humans can cause headache, fever, abdominal cramps, or diarrhea.

### TOXOPLASMOSIS

*What is it?*

Toxoplasmosis is a parasitic disease caused by *Toxoplasma gondii*, one of the world's most common parasites.

*How is it transmitted?*

*Toxoplasma gondii* is primarily transmitted through the ingestion of encysted larvae in tissues or forage contaminated with cat feces. Cats are the natural hosts of *T. gondii*.

*Can it be transmitted to domestic swine and other livestock?*

Yes. In swine and other livestock, there are usually no clinical signs, but it can cause mortality, especially in young animals.

*Can it be transmitted to humans?*

Yes. Humans can become infected via the ingestion of infective oocysts. Infection with *T. gondii* is a significant health risk to pregnant women and their fetuses, and to immunocompromised people.

### TRICHINELLOSIS

*What is it?*

Trichinellosis is a parasitic disease caused by the nematode (roundworm) *Trichinella spiralis*. Trichinellosis also is known as trichinosis.

*How is it transmitted?*

In swine, *T. spiralis* is transmitted through the ingestion of tissues containing encysted larvae.

*Can it be transmitted to domestic swine and other livestock?*

Yes. Domestic swine (higher risk for pasture-raised pigs) may become infected by ingesting the parasite in infected tissues or feces.

*Can it be transmitted to humans?*

Yes. Humans can become infected from eating infected, undercooked meat. *Trichinella spiralis* in humans can cause fever, abdominal pain, diarrhea, and vomiting.

## What Should I Do If I Think I Have Wild Pigs on My Property?

### Reporting

Call 800-858-1549 to report wild pig sightings, damage or criminal release. Once reported, a plan of action can be formed with KDFWR and USDA Wildlife Services to eradicate the invasive species. USDA Wildlife Services can be reached at 866-4USDA-WS (866-487-3297). Wild pigs can also be reported to KDFWR at: https://fw.ky.gov/InvasiveSpecies/Pages/Wild-Pig-Home.aspx.

## Removal

KDFWR, in partnership with USDA Wildlife Services, offers free professional trapping services to anyone who experiences damage from wild pigs or has the animals on their property. Trapping wild pigs is the most efficient method of eradication. KDFWR discourages shooting or hunting wild pigs to allow the department to trap them in an efficient manner. Hunting is not an effective means of control, as it can educate and spread the population. Shooting into a sounder may remove one or two pigs, but it can teach the remaining individuals to be wary of humans and human scent. It can also break the sounder into smaller groups that relocate to multiple locations, making trapping more difficult. Hunting pressure also tends to cause pigs to become nocturnal and avoid all human activity, making them difficult to locate. By the time they are located on the landscape, they may have increased in numbers, caused exponentially more damage and become even harder to eradicate.

## Links to Other Resources

KDFWR Wild Pig Website: https://fw.ky.gov/InvasiveSpecies/Pages/Wild-Pig-Home.aspx

USDA Wild Pig Website: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/operational-activities/feral-swine

A Landowner's Guide for Wild Pig Management: Practical Methods for Wild Pig Control https://extension.msstate.edu/sites/default/files/publications/publications/p2659_0.pdf

*Photos courtesy of Terri Brunjes, KDFWR.*


Issued 10-2021