

# Facts about Wildlife Diseases: Pseudorabies<sup>1</sup>

Samantha Wisely<sup>2</sup>

## What is pseudorabies?

Pseudorabies primarily affects swine; however, cattle, sheep and other mammals are susceptible to infection. Humans are not at risk of contracting pseudorabies. The superficial symptoms of this viral disease (disorientation, foaming at the mouth, and convulsions or tremors) resemble rabies symptoms, thus the name pseudorabies. (The disease is sometimes called “Mad Itch” because infected cattle and sheep will rub against objects to relieve the itching sensation on the skin.) Like rabies, pseudorabies is a viral disease, but it is caused by a different virus, one that is related to the human herpes virus. In addition to neurological signs, animals may show respiratory distress or infection of the reproductive system. The disease is often fatal in piglets, but weaned pigs, juveniles, and adults typically recover and survive after 7 to 10 days of illness (Murphy et al. 1999). Once infected, pigs become carriers of the virus throughout their lives and continue to shed the virus when stressed (USDA 2008). Pseudorabies (abbreviated PRV) is also called Aujeszky’s disease and is named for the man who first described the disease in dogs, cats, and cattle in 1903.

## Pseudorabies in feral and domestic swine

Once a commercial vaccine was developed, a nationwide control effort eliminated pseudorabies from the US commercial swine industry in 2004. It remains a common disease in commercial piggeries globally, however. Before the elimination of pseudorabies from commercial operations, the US economy lost \$34 billion annually to control

efforts and lost revenue (Ministry of Supply and Services Canada 1988). Current vaccines for swine are considered both safe and effective.

Although the disease was eliminated in commercial animals, feral swine populations in the United States continue to circulate pseudorabies and provide a reservoir for outbreaks. Texas, Oklahoma, Florida, and Hawaii all have dense populations of feral swine with a high prevalence of pseudorabies (Figure 1). Feral swine, therefore, pose a serious risk to commercial swine operations, livestock, companion animals, and wildlife.

## Who is at risk for contracting pseudorabies?

Humans are not susceptible to contracting the pseudorabies virus.

Along with swine, cattle and sheep are susceptible to pseudorabies (Figure 2), and the disease is fatal to these animals. Once a cow or sheep is infected, it takes 2 to 5 days for symptoms to develop, and once more severe neurological, respiratory, and reproductive symptoms occur, infected livestock die within 1 to 2 days (Callan and Van Metre 2004). Sporadic outbreaks of pseudorabies occur in cattle, particularly when they are co-mingled with swine (Beasley et al. 1980). The virus is passed directly via nose to nose contact and indirectly via contact with urine or feces. The virus can live for up to two weeks in the environment.

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2. Samantha M. Wisely, associate professor, Department of Wildlife Ecology and Conservation, UF/IFAS Extension Gainesville, FL 32611.

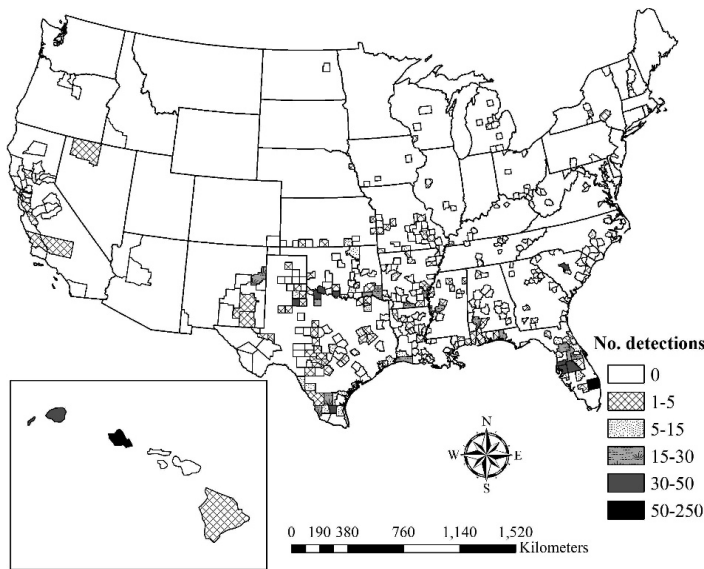


Figure 1. Seroprevalence of pseudorabies in feral swine from 2009–2012 in the United States. Credits: Pedersen et al. 2013. Reproduced with permission from the *Journal of Wildlife Diseases*.



Figure 2. Remotely triggered camera picture of feral swine and cattle near feed tubs on a ranch in south central Florida. Credits: Courtesy of the author.

Pseudorabies is a fatal disease in dogs and cats. Symptoms are similar to rabies including excessive salivation, scratching that can lead to self-mutilation, and a lack of coordination or paralysis, but animals infected with pseudorabies will not display an aggressive behavior as do rabid animals (Thiry et al. 2013). There is no vaccine to prevent pseudorabies in cats or dogs.

In the United States, cats and dogs become exposed to the virus when fed raw meat or offal from infected feral swine. Dogs used to hunt feral swine have additional risks because they may also become infected if they come into contact with live feral swine, or feral swine carcasses, gut piles, or feces.

Wild carnivores are susceptible to pseudorabies, and death from pseudorabies has been documented in European brown bears (Zanin et al. 1997), wolves (Verpoest et al. 2014), raccoons (reviewed in Thawley and Wright 1982), Florida panthers (Maehr et al. 1991, Glass et al. 1994), and coyotes (Raymond et al. 1997). Carnivores are considered a dead-end host to pseudorabies, i.e. the disease does not persist and circulate in populations of carnivores because animals succumb to the disease so rapidly that they rarely transmit the disease. Most documented deaths in wildlife come from captive studies where animals have been fed infected pork. More work is needed to understand the risk of pseudorabies to carnivore populations in the wild. Wildlife become exposed to pseudorabies when they prey on feral swine (adults or piglets) or eat the carcasses or gut piles of infected feral swine that are left by hunters or land managers practicing control. There is the potential for indirect transmission of pseudorabies to wildlife from swine urine or feces deposited in the environment.

## How can I protect my pets from pseudorabies?

There is currently no vaccine available for cats or dogs; attenuated vaccines (i.e., live virus vaccines) that protect pigs are lethal for cats (Thiry et al. 2013) and dogs. If house cats and dogs are fed meat from feral swine, it should be thoroughly cooked. Commercial pet food is the safest product to feed pets.

Hunting wild hogs with dogs has been a sport for centuries (Figure 3) and is still popular today throughout the United States. Dogs used for hunting feral swine are particularly at risk for contracting and dying from pseudorabies. To reduce the risk of exposure, dog owners should limit contact between dogs and swine and prevent dogs from eating any part of wild pigs, unless the meat is thoroughly cooked.

## Pseudorabies in Florida

In the United States, approximately 25% of adult feral swine are seropositive for pseudorabies, meaning that they have been exposed to and are likely carriers of the virus. Florida, however, has a higher-than-average feral swine population and therefore a higher prevalence of pseudorabies (Pedersen et al. 2013). The higher prevalence of pseudorabies in feral swine means a higher risk of exposure and death for Florida livestock, wildlife, and pets.

Evidence suggests that wildlife and companion animals have been impacted by pseudorabies in this state.

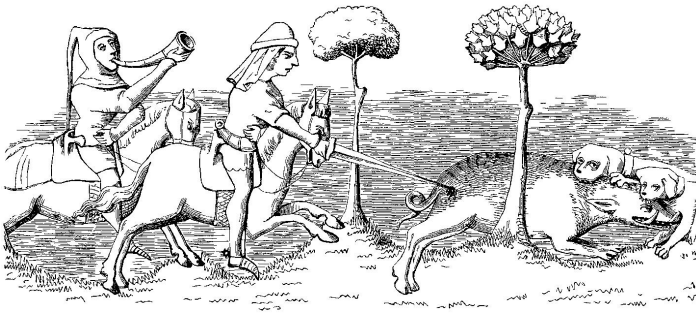


Fig. 160.—Sport with Dogs.—“How the Wild Boar is hunted by means of Dogs.”—Fac-simile of a Miniature in the Manuscript of the “Livre du Roy Modus” (Fourteenth Century).

**Figure 3. Hunting wild pigs with dogs dates back to the 14<sup>th</sup> century.** Credits: This print, “How the Wild Boar is hunted by means of Dogs,” is from the manuscript *Livre du Roy Modus*. Public domain.

Numerous public hunting areas in Florida allow “hog dogs,” dogs that are trained to track wild hogs. Reports of hog dogs contracting and dying from pseudorabies occur every year throughout the state (e.g. [www.promedmail.org](http://www.promedmail.org), archive no. 20081118.3637), but the magnitude of animal deaths is unknown. The endangered Florida panther is also at risk of death from exposure to pseudorabies. As of 2014, four Florida panthers have been confirmed to have died from pseudorabies. Another 14 are suspected to have died from pseudorabies, but lab results were inconclusive (Glass et al. 1994; M.C. Cunningham, unpublished data).

## Decreasing the risk of exposure

Eliminating swine-borne diseases such as pseudorabies from Florida is likely an unrealistic goal given the pervasive nature of feral swine on the Florida landscape. Steps can be taken, however, to reduce disease prevalence and the risk of exposure to pets and livestock:

1. Reduce numbers of swine through animal control, especially on rangelands where livestock are at greatest risk.
2. Keep feral swine away from congregating livestock animals, for example at pens, milking barns, and feed areas.
3. Eliminate translocation of feral swine to reduce spread of diseased animals into populations free of pseudorabies.
4. Do not feed offal or uncooked meat to dogs or other pets.
5. Minimize contact between wild pigs and hunting dogs.

A note to hunters: Although pseudorabies in feral swine does not pose a risk to humans, other diseases carried by pigs such as brucellosis can make people very ill. Wear gloves when handling uncooked meat or other carcass parts of feral swine, and if blood or other bodily fluids come

into contact with your skin or mucous membranes, wash the affected area immediately and contact your doctor. In addition, keep pets away from swine carcasses or live feral swine, and do not feed pets raw meat from feral swine.

This publication is the first in a series on *Wildlife Diseases: Risks to People and Animals*.

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