

Comprehensive Feral Swine Disease Surveillance and Monitoring

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Damage caused by feral swine (*Sus scrofa*) has been well documented by wildlife management professionals, but managing disease risks associated with feral swine is a relatively new concern for the wildlife community. Commercial swine producers, regulatory veterinarians, and trade associations are increasingly concerned with disease risks to domestic swine associated with feral swine. This has led to implementation of management and control programs to reduce the possibilities of disease introduction and spread.

Surveillance for disease status in feral swine populations is key to understanding the risk of infection of domestic swine herds. APHIS-Wildlife Services (WS) and Veterinary Services (VS) have worked together for many years to refine surveillance and monitoring efforts in swine populations targeted for control by WS. As the National Animal Health Surveillance System has matured over the years, the National Surveillance Unit (NSU) has worked with other VS partners and WS staff to incorporate targeted sampling of feral swine tissue and serum collections into risk-based surveillance strategies for multiple swine diseases of interest. VS swine regulatory and surveillance planners and WS managers annually meet to establish sampling targets based on alignment of WS sample collection capabilities with VS' targeted sampling needs outlined in various disease surveillance plans developed by NSU.

Original cooperative efforts between VS and WS involved two endemic diseases of feral swine that are of national importance to domestic swine herds in the United States: pseudorabies virus (PRV) and swine brucellosis (SB). PRV causes disease in swine and can also terminally infect cattle, sheep, goats, and many species of wildlife. The virus was eradicated from the commercial swine industry in 2004, but remains in the feral swine population. SB is an infectious bacterial disease of swine caused by *Brucella suis*, one of at least six closely related species of *Brucella* that cause disease in a variety of wild and domestic mammals, including humans. Feral swine are significant reservoirs

of SB with apparent prevalence exceeding 30 percent in some areas. While brucellosis is a zoonotic threat, its main risk is re-infection of commercial swine herds. More than 2,500 feral swine samples are collected annually for PRV and SB monitoring

FAD threats

The efforts have grown beyond PRV and SB to include two foreign animal disease threats to the U.S. livestock industry: classical swine fever (CSF) and foot-and-mouth disease (FMD). While both CSF and FMD have been eradicated from many developed countries, they are still endemic in much of the world. Due to possible reintroductions, developed nations with extensive livestock production and feral swine populations conduct surveillance for these diseases. CSF, or hog cholera, is a highly contagious disease of swine that was eradicated from the United States in 1978. Feral swine are one of the surveillance streams of interest in a larger CSF surveillance project. More than 2,300 feral swine are now sampled annually for CSF surveillance.

FMD is the most contagious disease of livestock and was eradicated from the United States in 1929. The Centers for Epidemiology and Animal Health document, *Pathway Assessment of FMD Risk to the U.S. 2001*, demonstrated that feral swine are a viable sampling stream for FMD surveillance information. Current plans call for WS and VS to partner with the National Animal Health Laboratory Network in an upcoming pilot FMD surveillance project. Wildlife disease biologists in nine States will collect biological samples as part of the pilot project and may conduct active observational surveillance by screening feral swine through observation for suspect lesions consistent with FMD infection.

International Trade Perspective

In addition to the previously mentioned diseases, *Trichinella spiralis* and *Toxoplasmosis gondii* are other feral swine-carried diseases that have become more important from an international trade perspective. Although relatively rare in commercially-produced pork, both diseases can be spread to commercial swine via unplanned contact with feral swine. Neither disease causes significant illness in infected swine. Their significance is from potential infection of undercooked meat products for human consumption. Both of these parasites are being investigated in a national sample of feral swine through an agreement between the National Pork Board, VS, WS, and USDA's Agricultural

Research Service. The goal of this project is to provide scientific data, which will improve international trade of commercial swine products.

By working at the livestock-wildlife interface, these surveillance and monitoring efforts target the front line issues surrounding these zoonotic, foreign animal, and endemic diseases of swine.