

Serologic Surveillance of Selected Viral and Bacterial Pathogens in South Carolina's Feral Swine Population

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ABSTRACT: Feral swine (*Sus scrofa*) are considered an invasive species that is comprised of the wild descendants of domestic swine, European wild boar, and hybrids of these two species. Feral swine were historically associated with the major river drainages in Coastal South Carolina. However, natural range expansion and human release and relocation of feral swine appear to be sources of their expansion into areas not previously occupied. Although an exact estimate of feral swine population numbers is not available, in 2006 feral swine were reported in 42 of 46 South Carolina counties, compared to 46 of 46 counties reporting feral swine activity in 2011. Feral swine can serve as reservoirs for a number of diseases including pseudorabies, swine brucellosis (*Brucella spp.*), porcine respiratory and reproductive syndrome and porcine circovirus which may be passed to livestock and, in some cases, native wildlife and humans.

The National Wildlife Disease Program within the US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services conducted serologic surveys for pseudorabies virus, brucellosis, porcine circovirus, and porcine respiratory and reproductive syndrome virus in South Carolina feral pig populations from 2007- 2012. During that period, we opportunistically sampled and collected serum from 545 feral pigs. Overall, 111 of 544 (20.40%) animals tested positive for antibodies to pseudorabies, 87 of 545 (15.96%) animals tested positive for antibodies to brucellosis, 171 of 306 (55.88%) animals tested positive for antibodies to porcine circovirus, and seven of 312 (2.24%) animals tested positive for antibodies to porcine respiratory and reproductive syndrome. Positive cases of pseudorabies and brucellosis were spatially limited to populations closely associated with the major river drainages in Coastal South Carolina. These positive cases of pseudorabies and brucellosis were found in areas of long established pig populations. The seven positive cases of porcine respiratory and reproductive syndrome were limited to one geographic cluster within the Congaree and Wateree river confluence and two clusters along the PeeDee River Drainage. These clusters of seropositive cases indicate a more geographically localized distribution of porcine respiratory and reproductive syndrome. Interestingly, positive cases of porcine circovirus appeared to be evenly distributed across all sample locations in South Carolina. A more spatially and temporally consistent sampling strategy is recommended to investigate linear spread of pathogens along river drainages and throughout the feral swine population in South Carolina.

Key Words: bacteria pathogens, feral swine, serologic surveillance, viral pathogens

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