National Wildlife Disease Program

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Program Activity Report (PAR)

Neospora caninum exposure in coyotes and feral swine

Pathogen transmission at the wildlife/livestock interface is a pressing issue and movement of disease into domestic animals can result in substantial financial losses for livestock producers. Despite these potential consequences, the transmission dynamics of pathogens and parasites are often not well understood when wildlife are involved in the transmission cycle. Since we cannot see transmission happening in the field, there is often limited information available on how it occurs, when it occurs, and what factors are primarily responsible for driving parasite movement between hosts.

Neospora caninum is an example of a parasite whose presence can financially impact cattle producers if it is introduced into a herd. This parasite requires a canine definitive host to complete its lifecycle and therefore exposure in cattle and other species is linked to the presence of either wild canids or domestic dogs.

Biologists with the NWDP recently published a manuscript entitled, "*Neospora caninum* exposure in overlapping populations of coyotes (*Canis latrans*) and feral swine (*Sus scrofa*)," in the Journal of Wildlife Diseases. This project used data from the NWDP National Nobuto Storage Archive and the Feral Swine Serum Archive to better understand *N. caninum* presence and host exposure in the environment. Blood samples from coyotes, a definitive host, and feral swine, an invasive species that is expanding its range and abundance, were screened for *N. caninum* antibodies.

We found evidence of widespread *N. caninum* exposure in coyotes across a large spatial scale. We also reported the first *N. caninum* positive serology results in US feral swine populations, whose exposure may be indicative of cattle infection risk. Feral swine can act as a potential sentinel for many infectious pathogens because of their presence in a range of habitats and their generalist diet. Spatial analyses revealed that positive feral swine did not cluster spatially or temporally with coyotes. A subset of feral swine samples collected in Hawaii was also analyzed and revealed *N. caninum* exposure on all three islands tested (Hawaii, Oahu, and Kauai). There are no native canids on Hawaii, and domestic dogs are the only known source of infection.

For more information, see Bevins et al. 2013 in the Journal of Wildlife Diseases (http://www.jwildlifedis.org/doi/pdf/10.7589/2013-02-034), or contact Sarah Bevins, Sarah.N.Bevins@aphis.usda.gov.

The original artwork on this page was created by the National Wildlife Disease Program's Erika Kampe and Sarah Goff