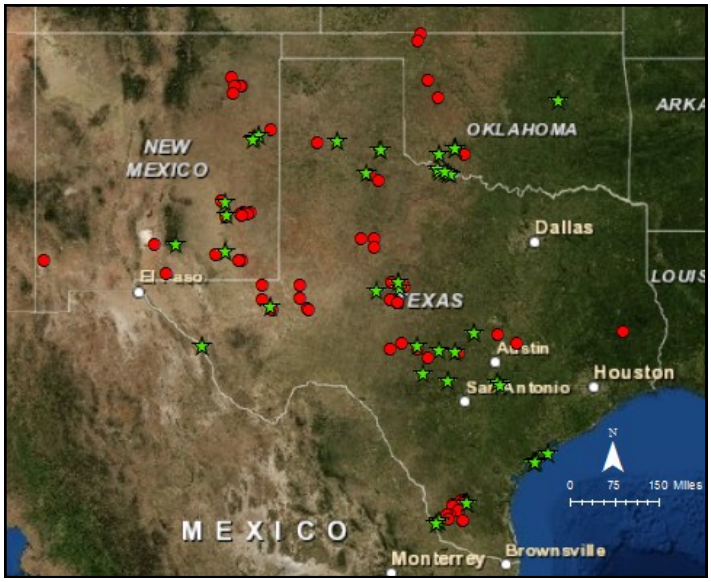
# Program Activity Report (PAR)

## *Neospora caninum* surveillance

*Neospora caninum* is a protozoan parasite with a life cycle that is similar to its more well-known parasitic counterpart, *Toxoplasma gondii*. The similarities between the two parasites led to *N. caninum* being misclassified as *T. gondii* for a long period of time, and it was only definitely identified as a separate parasite in 1988. It has generated interest because it can infect a wide-variety of mammals and, in some cases, these infections lead to clinical disease, especially in canids and cattle.

The parasite requires a canine host to complete its life cycle. While most infections in domestic dogs and other canids appear to cause limited to no disease, it can develop into a serious infection in very young dogs and occasionally adult animals as well. In cattle, *N. caninum* can cause spontaneous abortion and it is now believed to be the leading cause of abortion in dairy cattle. Research has revealed that economic losses related to *N. caninum* related abortion can reach $35 million per year in California alone and high numbers have been reported from other states as well.

In order to better understand N. *caninum* presence on the landscape, NWDP researchers utilized blood samples collected from wildlife and stored in both the Plague and Tularemia National Nobuto Storage Archive and the Feral Swine Serum Archive for a retrospective study on the parasite. Coyotes -- a definitive host for the parasite -- were screened for *N. caninum* antibodies using blood samples collected across multiple states. In addition, feral swine samples that were collected during the same period and in the same counties as the coyote samples were also screened for antibodies. Initial results reveal similar seroprevalence in both species (coyotes: 18%, 95% CL=14.3-22.3; feral swine: 15.8%, 95% CL= 12.7-19.5) and widespread exposure. The parasite can persist for long periods of time in the environment, leading to potential exposure in a wide-range of species, including feral swine, and these species may represent a way to assess exposure risk. This ongoing study represents the first report of *N. caninum* exposure in feral swine. Further analyses are ongoing and will hopefully shed light on the spatial relationship between positive coyotes and exposure risk in other species.




Sample locations in Oklahoma, New Mexico, and Texas. Red circles denote *N. caninum* seropositive coyotes, green stars are seropositive feral swine.

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