

## PROGRAM ACTIVITY REPORT (PAR)



## Screening Cervid Samples for EHD

During the last two years, states from Montana to New York have reported local white-tailed deer die-offs due to Epizootic hemorrhagic disease (EHD). Epizootic hemorrhagic disease is caused by a vector-borne virus transmitted by species of the genus *Culicoides*; also known as biting midges or no-see-ums. It is a member of the genus *Orvivirus*, which also contains bluetongue virus (BTV) and both of these pathogens affect livestock.

There are multiple strains of EHD and it is thought that the introduction or natural range expansion of novel EHD strains (such as EHD-6) can be devastating to naïve deer

populations, leading to severe morbidity and mortality. Many states reported thousands of deer succumbing to this disease during the summers of 2011 and 2012. In some regions, the EHD virus has been detected in cattle, which is a cause for concern, because it adds another

disease that then must be ruled out from other vesicular diseases when making a diagnosis.

The NWDP began collecting white-tailed deer serum samples in April of 2011 for use in multiple cervid disease surveillance projects. After these samples were tested for an initial set of diseases, remaining sera was archived at  $-80^{\circ}\text{C}$ . The NWDP

contain both assay controls (blue wells) and test samples (white wells, either positive or negative). As the contents of each well diffuse out, a precipitate line forms where antigen from the center well meets antibody from any positive samples. So if the test samples are negative, no precipitate line will appear in front of the sample (Figure 1). If there are positive samples within the plate, a precipitate will appear (Figure 2). These

AGIDs are simple to use and accurate in their ability to detect antibodies in the serum, but the test does require a 24-48 hour run time.

In regions where deer have been regularly exposed to EHD,

large numbers will often be seropositive; however, high mortality rates in areas where EHD is new or where a novel strain is present may lead to lower rates of surviving seropositive animals. For more information, please contact Mark Lutman:

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Figure 1

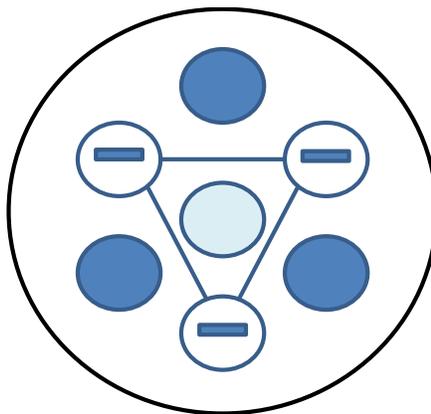
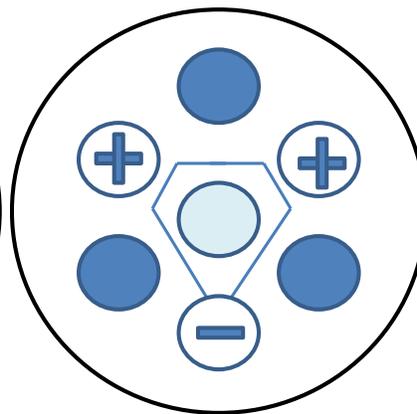


Figure 2



will be using these archived samples to test for EHD antibodies via an agar-gel immunodiffusion (AGID) test. The AGID test works by placing a positive control that contains EHD antigen in the center well of a sample plate. This center well is then surrounded by multiple wells which

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

