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WEST NILE VIRUS, REINDEER - USA (MINNESOTA)  
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A ProMED-mail post

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Date: 13 Nov 2002

From: Sylvia Macbean "smacbean" <[s.macbean@sasktel.net](mailto:s.macbean@sasktel.net)>

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<<http://www.deer-digest.com>>

Reindeer die from West Nile virus

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[by Tom Scheib, vice president of the Reindeer Owners and Breeders Association (ROBA) with reindeer farms in Milltown WI and Taylor's Falls MN]

Reindeer owners have frequently heard that "cervids are cervids" or "deer are deer." From anecdotal experience, we believe that reindeer respond differently than many other cervids to various disease and testing situations. Presentations during annual USAHA meetings have demonstrated these experiences are being validated by scientific studies.

At the 2001 Captive Wildlife and Alternative Livestock committee meeting, Dr Tracey McNamara commented on cases of West Nile virus (WNV) infection, showing that initial assumptions of the disease and its effects were wrong. ROBA members have been speaking with veterinarians and wildlife biologists in various agency positions since 1999 regarding WNV and the possible effects to their reindeer and herds. The overwhelming response from that community was reindeer should not be expected to contract WNV.

The author [named above] lost 2 young reindeer to what was at the time believed to be chronic wasting disease (CWD). These animals were not tested for WNV. Neither of these animals had a definitive diagnosis determined. Very shortly after the loss of these animals, the author observed his 10 year old reindeer bull exhibiting an apparently weakened condition with ears down and at times staggering. The bull's condition did not improve overnight and he was euthanized some time that morning. He was sent, intact, to the Barron lab. He was not tested for WNV. The brain stem was sent to NVSL (National Veterinary Services Laboratory) for CWD testing, as required by Wisconsin rules. When the reindeer bull was euthanized, brainworm was suspected as a possible cause of the clinical signs observed. Cervids and reindeer were not expected to contract or exhibit symptoms of WNV. CWD testing subsequently indicated that no prions were evident. The cause of death was not definitively determined.

On the same day the author observed his reindeer bull's clinical signs, a 12 year old gelding reindeer began exhibiting very similar signs. This

animal was confined and treated for brainworm. This animal was kept alive for 10 days with supportive treatment, ampicillin, Ivomec, banamine, vitamin B complex, and dexamethasone. After 3 days of treatment the animal appeared to improve, and continued to eat and drink, but then deteriorated and developed paralysis. During the treatment period WNV became a suspected cause of the animal's demise. The brain, as required, and blood samples were delivered to the Barron Lab the next day, for further transfer to NVSL. The gelding was sero and PCR (polymerase chain reaction) positive for WNV.

On October 1st, I was informed by Dr Mitch Palmer [who he? - Mod.SH] that 3 of the 19 reindeer delivered to NVSL in May had died of WNV. Those reindeer, housed at NADC, are on pastures adjacent to or near pastures containing elk, white-tailed deer, bison, cattle, sheep, and horses. To date, however, clinical signs have been seen only in the reindeer and 3 have died -- on 20, 24, and 27 September 2002.

Two of the dead reindeer were found febrile, in lateral recumbency with tetraplegia (all 4 limbs paralyzed). A third was febrile, depressed, head tilt, flaccid tongue with dysphagia (difficult swallowing), progressing to tetraplegia within 12 hours. Their brains were PCR positive at NVSL. Histological examination showed mild lymphocytic perivascular cuffing and edema, gliosis, and lymphocytic infiltrates. Lesions were most pronounced in medulla, but still categorized as mild to moderate. The spinal cord also contained perivascular lymphocytic cuffing and marked myelin sheath swelling. The myocardium contained mild multifocal areas of myofiber degeneration/necrosis with little inflammation. WNV immunohistochemistry showed mild staining limited to the brain stem and spinal cord. Complete blood counts on the September 24 and 27 deaths indicated elevated fibrinogen, stress leukogram, and lymphopenia -- consistent with a viral infection.

Some ROBA members have observed similar symptoms in reindeer having died this past summer and earlier, but were not tested for WNV. The voluntary CWD monitoring programs requires the brain stem of deceased adult animals for CWD testing. That tissue is also the tissue of choice for WNV testing. This is a dilemma for the reindeer owner whose species is 1 of 34 that has yet to exhibit CWD but appears very susceptible to WNV, while other cervids may not be.

The reindeer industry suffered because appropriate people were unaware that tuberculosis occurred in reindeer. There is no reason to repeat this scenario. The United States Department of Agriculture Animal and Plant Health Investigation Service can ensure the appropriate pathologists are aware of reindeer susceptibility to WNV when examining brain stems for CWD. ROBA appeals for any assistance from USDA or other agencies in developing, recommending, and testing an appropriate vaccine for reindeer for WNV.

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[The similarity between WNV and CWD in reindeer is disturbing and confusing. It is essential that pathologists recognize the possibility that reindeer may have WNV as well as/rather than CWD. It also brings up the question as to whether some of the other sick cervids in Wisconsin and other areas may also have WNV. - Mod.TG]

.....mjh/tg/sh

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