

Fighting EHD in Texas

story by MELANIE SMITH

Epizootic Hemorrhagic Disease (EHD) is currently having devastating effects on white-tailed deer throughout the southern states. Multiple cases of EHD have been reported from Texas, Oklahoma, Louisiana, Alabama and New Mexico. The overwhelming effects of this viral disease have left everyone asking questions.

Epizootic Hemorrhagic Disease is a relatively new disease affecting white-tailed deer in Texas. The first reported case of hemorrhagic disease in Texas was in 1966 and it involved a captive white-tailed deer. It is believed that EHD was affecting the free-ranging populations long before 1966 and might have been responsible for large die-offs that occurred in the late 1800s. In 1955, Northern deer populations were dramatically affected by EHD and hundreds of deer were lost. It was in these herds that EHD was first reported and isolated. Since these early cases, much research has been conducted to learn more about this often fatal disease.

Epizootic Hemorrhagic Disease and Blue Tongue have very similar signs and symptoms and include the following: loss of appetite, weakness (growing progressively worse), excessive salivation, rapid pulse and respiration, labored respiration, swollen face, tongue, neck, eyelids, laminitis, ulcers in mouth, tongue, and fever. These diseases cause hemorrhages of all sizes that involve many organs. The spleen, heart, liver, kidneys, lungs, and intestinal tract are the most common organs affected by the hemorrhages. Due to the lack of oxygen associated with hemorrhagic disease, the oral mucosa will appear blue in color. Oral lesions are commonly found with EHD/BTV.

The vector of this virulent disease is a *Culicoides* midge



Yearling buck that died from EHD.

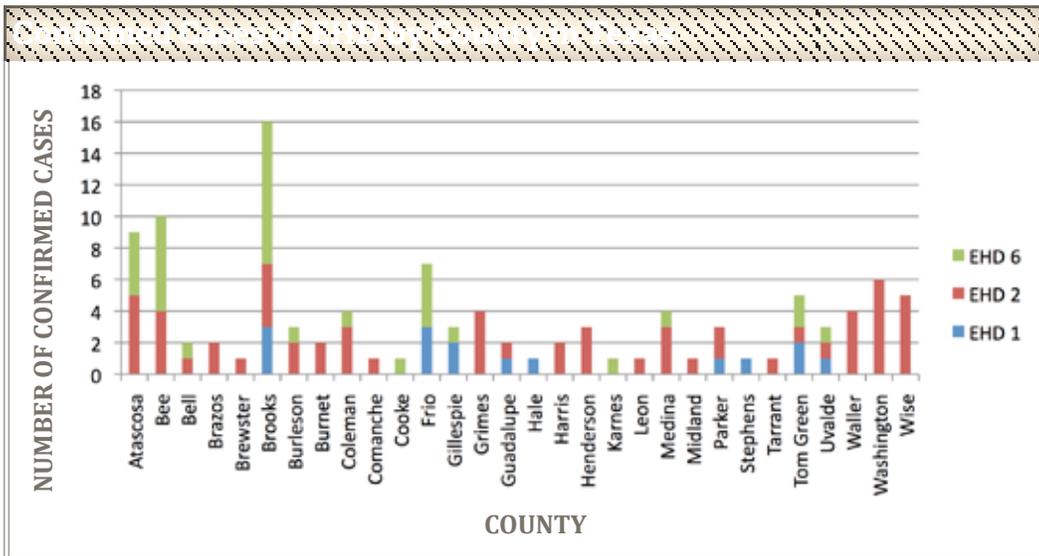


Oral lesions characteristic of EHD/BTV.

or biting fly. The midge is most active during summer and fall months, with reduced to negligible activity at the onset of frost. When a white-tailed deer is exposed to the vector, its immune system uses antibodies to help protect against infection. The immune system will be able to use the antibodies to protect against future infections because the antibodies have a memory specific to the type of EHD to which they were exposed. Diagnostic laboratories can detect these antibodies using a blood sample to see if a deer has been exposed to EHD. In 1991, Stallknecht et al. collected blood samples from 685 white-tailed deer throughout Texas. Out of the 685 deer evaluated, 84% had antibodies to EHD or BTV. Despite the high number of deer that had been exposed to EHD or BTV, very little hemorrhagic disease was ever observed. It was thought that a near perfect host-virus relationship might exist. Currently, the EHD is affecting most deer is rapid and potent, so deer breeders would probably argue the “perfect host-virus” relationship. It is easy to question what it is about this year that makes it unique.

Texas Veterinary Medical Diagnostic Laboratory (TVMDL) has received an unprecedented number of submissions for hemorrhagic disease testing. As of August 15, 2011, TVMDL had identified 108 cases of EHD serotypes 1, 2 and 6. On an average year, TVMDL typically identifies 50-60 cases of EHD. As the graph on page 42 indicates, 30 counties have confirmed cases of EHD. Many more counties in Texas have had reports of EHD, however it has not yet been confirmed by testing at TVMDL. Breeders across the state continue to battle this devastating disease.

EHD serotype 6 was only recently identified in Texas.



deer. According to Dr. Don Davis, Associate Professor at Texas A&M University department of Veterinary Pathobiology, this could be one explanation for the rapid dispersal of EHD 6 to other counties. Also, deer are frequently sold across the state and transferred to different breeder facilities.

As mention previously, counties across the state are being impacted by this viral disease. Many deer breeders are battling a unique form of EHD in that has a peracute presentation, and the disease

Upon its discovery in 2008, two Texas counties had confirmed cases of EHD 6. One was in the northeastern part of the state and the other county was in the southern region. Currently, EHD 6 has been identified in 13 counties across the state. Originally, EHD 6 was discovered in cattle in a northern state.

Cattle often act as a reservoir for EHD virus. The midge will feed on the blood from cattle, transferring the EHD virus to them. Unlike deer, cattle are not affected by this virus that causes hemorrhagic disease. However, it is believed that midges can still take a blood meal from cattle and transfer the virus to

is affecting deer in a very short period of time and in some cases 12 hours or less. This viral disease is usually classified as peracute, acute or chronic. Acute is classified by a rapid onset and a very short, severe disease course. Chronic refers to a slow disease process with a long continuance. Deer in Texas

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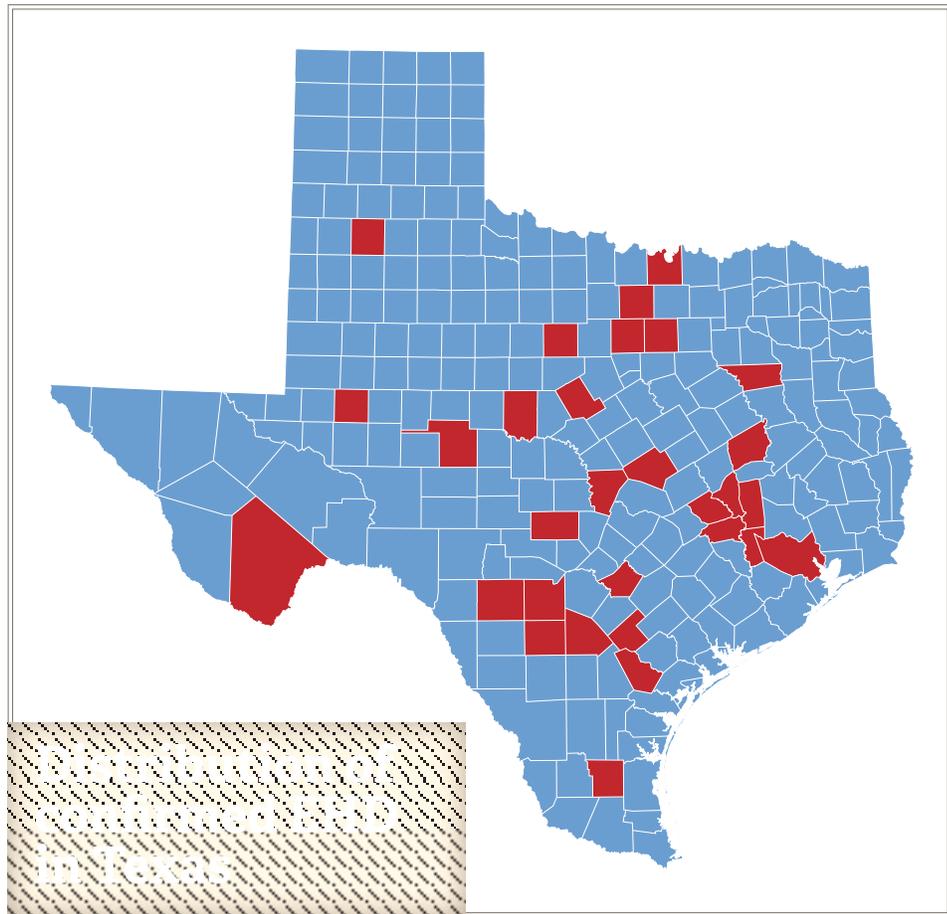
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P.O. Box 335
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Larry, Chris, Carolyn Scheel
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wildpointwhitetails@hughes.net

will suffer from all three presentation of the disease, and breeders that have been able to identify the symptoms of EHD have been successful with treatment.

Dr. Davis explained some of the possible reasons for the high occurrence of hemorrhagic disease this year. He speculates that the reason for the peracute disease is that deer are dying that have never been exposed to the specific serotype. These deer that lack antibodies to a certain serotype of EHD do not have the immune system advantage that other deer have. One example would be fawns and yearlings. It's very likely that younger deer will not have been exposed to the EHD virus as much as a two-year-old animal. Dr. Davis also explained, "We do not know which species of *Culicoides* is responsible for the EHD outbreak this year." He goes on to explain the differences in some of the species, "it has been reported that there is a species of *Culicoides* midge that can breed and propagate in manure, unlike the tradition assumption that all midges needed mud or moist ground to lay their eggs." Also, deer are suffering from an unusual amount of stress this year, weakening their immune systems and predisposing them to infections. The heat and drought is stressing all deer, both captive and native.

It is difficult to know exactly how to proceed during a time of such extreme hardship. In addition to aggressive treatment protocols, common ad-



vice has been to control the vector and reduce stress on deer. Some methods to control the vector, or midge, would include fogging pens in the morning and evening when the midge is most active, using mist systems with pesticide and keeping deer pens away from any ponds or tanks. It is known that the midge needs moist conditions to

propagate. This can include a variety of habitats from muddy, damp areas, to fecal and plant matter. It is also important to reduce stress and boost immune systems as much as possible. According to veterinarians, optimum nutrition, probiotics, adequate shade, and sprinklers or misters to cool pens will aid in reducing stress. •



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