

Dr. Deer's Whitetail World

BY DR. JAMES C. KROLL

CWD And EHD: A Matter Of Perspective

Almost everyone in the Western world has heard the story of David and Goliath. A little shepherd boy (David) was authorized by King Saul to accept the challenge of the giant, well-armored representative of the Philistines (Goliath). Armed only with a sling and five stones, David hurled a stone, hitting Goliath between the eyes, killing him instantly.

The Israelites celebrated David's victory with a parade. The women going ahead of David sang the song, "Saul hath slain his thousands, and David his ten thousands." Obviously this did not go over well with the old King, and trouble ensued.

What does this have to do with chronic wasting disease (CWD) and epizootic hemorrhagic disease (EHD)? To paraphrase the above song, CWD has killed its thousands, and EHD (and its cousin bluetongue, or BT) have killed their millions! Early last season on ***North American Whitetail Television,*** I predicted a major disease outbreak for deer herds in much of the Eastern and Mid-western portions of the U.S. Unfortunately, my prediction came true, with as many as 3 million deer falling to EHD/BT last year. Let's take a look at these diseases and what we can expect over the next several years. We'll also take a look at CWD and try to put both diseases in proper perspective.

A BLIGHT ACROSS THE LAND

Reports started coming in during the spring of 2007 about folks finding dead deer in most of the Northeastern and Midwestern states. I started receiving calls around mid-June. "We found one of our adult bucks lying dead near a pond, and he seemed to have just died!" one excited Indiana landowner reported.

After questioning him, it became obvious that we were dealing with EHD/BT. As the calls mounted on into the summer and fall — from an increasing number of states not normally associated with these diseases — my prediction came chillingly true. It appears that these diseases are spreading back into ranges where they have been uncommon for many years. The big question is, why?

For the purposes of this discussion, I will call the two closely related diseases by a more simple name, *hemorrhagic disease* (HD). HD is caused by orbiviruses, a group of viruses in the Reoviridae family. Although there are about 130 strains or serotypes of these diseases, affecting a host of animals, it is thought that two strains of EHD and five strains of BT affect deer. Virus particles are spread by biting midges or gnats most commonly of the scientific name *Culicoides variipennis*, but other gnat species also may be agents.

These pesky insects live in the

STATES AFFECTED WITH EPIZOOTIC HEMORRHAGIC DISEASE (EHD) AND BLUE TONGUE (BT) IN 2007

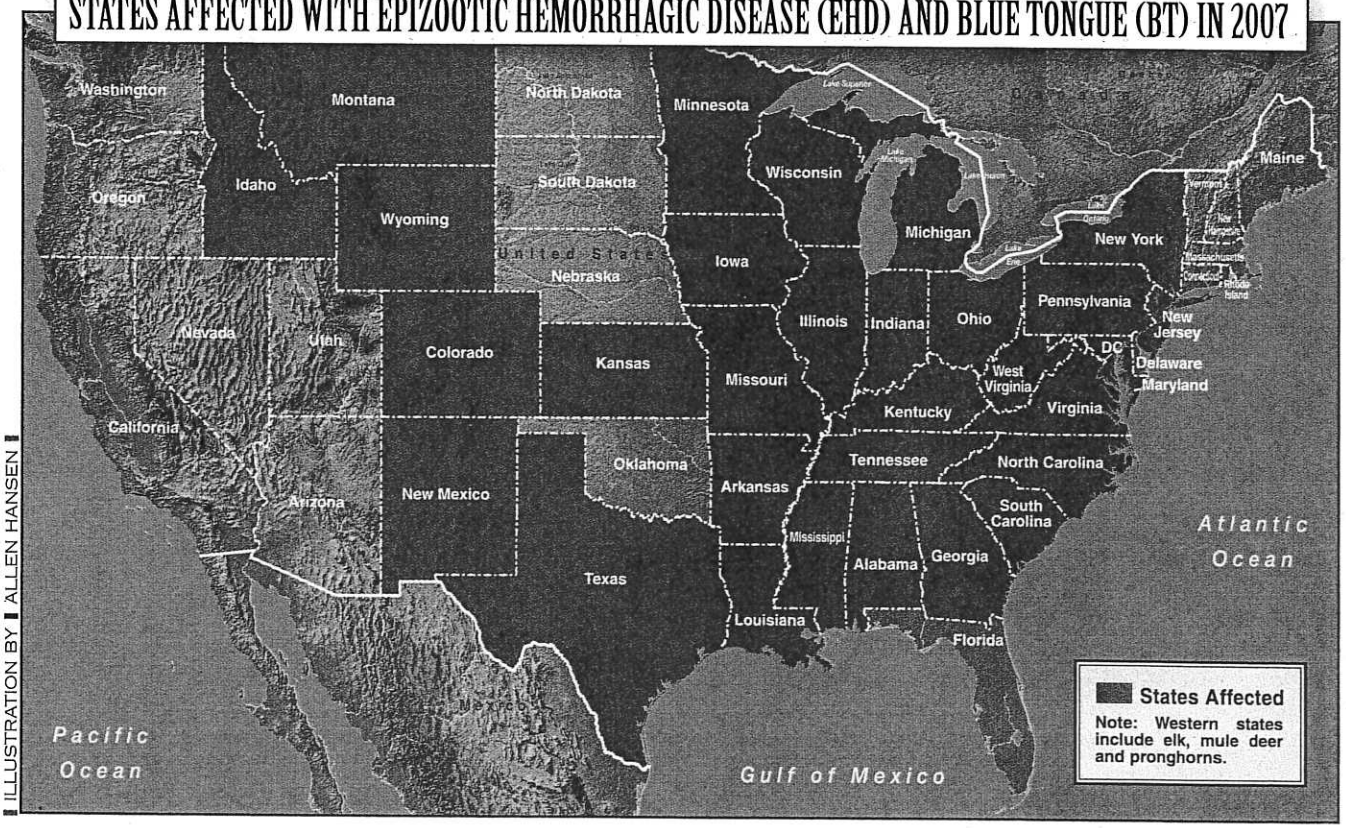


ILLUSTRATION BY ALLEN HANSEN

moist soil around ponds, streams and wet areas. They thrive in organic rich soils, emerging in warm weather to feed on vertebrates within a short distance of their development site. Attacks occur just at dusk and again shortly after daylight, the most common times deer go to water and feed in moist areas. Gnats usually feed on the underbelly of deer, where hair is not as dense.

Within 5 to 14 days after an infected gnat feeds on a deer, HD has worked its insidious attack. The deer experiences a very high fever, followed by lesions in the mouth, tongue and digestive tract. Within 24 to 48 hours, various organs begin to shut down, and the characteristic hemorrhaging (from which the disease gets its name) occurs. I have seen a deer's intestines literally melting from the disease. It has to be a terrible way to die! Due to high fever, dead deer often are found in close proximity to water, where they go to cool off.

A POOR SURVIVAL RATE

Not all deer die from HD, since incomplete resistance to some serotypes can occur and/or be acquired from nursing, in the case of fawns. As with many virus diseases, repeated inoculation helps somewhat in keeping a survivor from experiencing re-infection and death. Given the rare nature of some of the strains, however, there is no such thing as a deer completely immune to HD. Infections appear to travel in "waves" across the range, some say in five- to seven-year cycles. When a rare strain spreads, mortality rates are higher.

Within a specific geographic area, the existence of deer not regularly exposed to at least some strain of HD for more than three years results in significant death loss. This is why we saw such a high impact during 2007. Strictly speaking, it has been the expansion and increase in gnat populations that have caused the spread of HD. But why have gnat populations increased?

Whether you believe in man-caused global warming or not, it is a fact that the climate is changing in some areas of the world. Apparently this has happened many, many times over geologic time. Perhaps this was going on back in the 1950s when the disease was first discovered in New Jersey. Some think HD has been around and reported since the late 1800s, but we know for sure the first recorded incidence was in New Jersey in 1955. About the same time, it was reported in Michigan as well. I remember the excessive heat and drought of the late 1950s, but no one called it "global warming" at that time. It was just simply referred to as a "drought."

Whatever the reasons behind the recent warming period, conditions once again have been conducive to gnats. Realizing these trends is what led me to make my prediction.

THE REAL CULPRIT: TOO MANY DEER

Will the incidence of this disease continue to increase in 2008? We know the virus can survive over-winter with the gnats, but there has to be a minimum temperature at which there is a reduction in abundance. The winter of 2007-2008 was a very hard winter in many of the affected areas, so there may be hope. It will all depend on the type of spring and summer we have in the Northeast and Midwest. If the drought continues in many of these areas, and temperatures remain high, we may see an increase in HD. My best guess at this time is that it will be a couple of years before we get relief.

Yet, the real problem with HD is the fact that it is a "density dependent" disease. For too many years, deer numbers have increased considerably above the "carrying capacity" of the land. Inadequate doe harvest and declining hunter numbers are supporting overpopulation. The more deer we have, the higher the probability any disease will spread geographically. But hunters continue to clamor for more deer. Unless hunters and landowners fully support population control, HD and a host of other diseases (some perhaps unknown at this time) will take their toll.

OUR ROLE AS HUNTERS

The most interesting thing about the 2007 HD outbreak is the reaction by many state agencies. Whereas sheer panic ensued when chronic wasting disease (CWD) showed up in Wisconsin back in 2002, most agencies adopted a "ho-hum" reaction to the HD die-offs. For whatever reason, CWD has received a disproportionate reaction to its ultimate impact on white-tailed deer. This could be due to the fact that we lost hunters as a result of the CWD panic, and anything jeopardizing the approximate $1 billion in annual license sales frightens many state agencies.

Failed CWD eradication efforts in Wisconsin, plus surprising population increases of mule deer and elk within the assumed geographic origin (Colorado and Wyoming), strongly suggests that the gloom and doom predictions about the eventual extinction of whitetails we read about five or six years ago is not going to happen. With both CWD and HD, however, I feel certain that these and other diseases will indeed represent a management challenge throughout the remainder of my career. The only real solution is a management strategy that focuses on population control.

Some states are now looking at removing bag limits on antlerless deer altogether — an unthinkable solution 10 years ago. You can imagine the reaction among some hunters. In the 21st century, each of us will have to decide if we are to remain "hunter-consumers" or become true "hunter-managers." That is what the non-hunting public wants and expects. If our sport is to survive, we all better make that commitment soon.

(Editor's Note: *North American Whitetail* has recently learned that a deer "culling" program, similar to the one carried out in Wisconsin, is being conducted in southeastern Alberta along the Saskatchewan border in an attempt to eradicate CWD. According to the Alberta Fish and Wildlife Service: "CWD has been found in a total of 34 wild deer in Alberta. The first case was discovered in 2005. Twenty-three more cases were found in 4,800 deer provided through targeted culls over the past few years. Ten more infected deer were found among 17,000 wild deer heads tested as of Jan. 7, 2008, most of which were provided by hunters." As many as 10,000 deer, both mule deer and whitetails, have been eradicated during the past few years.)