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Question:

What's faster? The Tortoise or the Hare?

Answer:

Rabbit Hemorrhagic Disease Virus 2

By: Michel Kohl, Brian Dugovich, Mark Ruder, and Gino D'Angelo

As our news feeds are overwhelmed by data, statistics, and expert opinions about the COVID-19 pandemic, another infectious disease is racing across the United States faster than either the tortoise or hare ever could. Rabbit hemorrhagic disease virus 2, or RHDV2 for short, is a highly contagious virus that can affect wild and domestic rabbit populations worldwide and poses a significant concern to hound hunters both in the United States and across the globe.

RHDV2 first emerged in France in 2010 in European rabbits. In less than a decade, the virus spread throughout much of Europe, and then into multiple African countries, Australia, New Zealand, Israel and Canada. Then, on September 17, 2018, the U.S. Department of Agriculture Animal and Plant Health Inspection Service (more commonly referred to as USDA-APHIS) announced the first reported case of RHDV2 in the U.S. after the virus was associated with the death of four domestic rabbits in Medina County, Ohio. Additional RHDV2 cases were later confirmed in domestic rabbits in the U.S. and Canada during 2019 and 2020. It is unclear whether these subsequent cases were related to the Ohio case, or alternatively, were the result of additional introductions of the virus to North America.

Regardless of origination, since March 2020, RHDV2 has been confirmed in wild rabbit and hare populations across the southwest with disease outbreaks discovered in New Mexico, Arizona, Colorado, Texas, and California. Thus far, these outbreaks have involved multiple jackrabbit and cottontail species. A county-level map of cases in both wild and domestic rabbits is updated weekly and can be found here: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa-epidemiology-animalhealth-ceah/ri. This rapid spread is especially disconcerting given the potential for the disease to substantially impact both game populations and the larger wildlife community. In a previous outbreak in Spain, it was estimated that RHDV2 drove a 60% decline in European rabbit populations, which was quickly followed by declines in the recruitment of rabbit and hare predators including the endangered Iberian lynx and the Spanish imperial eagle. In Australia, RHDV2 has had similar impacts on the invasive European rabbit with population numbers crashing by 60%.

The rapid effects of this virus are driven in large part by its highly contagious nature. The virus is easily transmitted with most cases occurring through direct contact with infected urine, feces, and/or respiratory secretions. However, in other cases, indirect contact with a contaminated environment (e.g., food, water, bedding) can also lead to transmission. Furthermore, the virus may remain infectious in the environment for weeks to months suggesting that the virus can persist and even spread within low density rabbit populations where direct contact between rabbits rarely occurs. Further complicating matters, it has also been suggested that the virus may still be infectious in feces after passing through the digestive system of predators which may allow the disease to spread across populations more quickly.

RHDV2 can affect both young and adult rabbits and hares, and in most cases, affected animals die within 36 hours of showing symptoms. Symptoms vary but can include reduced activity, fever, lack of appetite, diarrhea, difficulty breathing, ocular bleeding, and neurological signs. In wild populations, however, it is unlikely you will observe symptoms, but rather, detect an RHDV2 outbreak through the large numbers of carcasses distributed across the landscape.

In these days of COVID-19, "murder hornets", and other strange happenings, it is important to note that RHDV2 is not a risk to humans or non-rabbit pets. For hound hunters, this may be of little consolation, however, if the disease continues its spread throughout North America and they begin to see large-scale reductions in the rabbit populations. As a result, there are two important steps each hound hunter can take to help in this fight.

First, domestic rabbits can pose a significant challenge in containing this virus. Domestic rabbits are easily transported long distances by people for a variety of reasons. Further, depending on the housing conditions, domestic rabbits may interact with wild rabbits, or may escape captivity to establish feral colonies that increase the risk of RHDV2 spillover to wild species. Given this possibility, it is vital that domestic rabbit owners and people using domestic rabbits to train hounds understand, acknowledge, and prevent the potential dangers associated with accidental or purposeful release of domestic rabbits into the wild. Also, although a RHDV2 vaccine does exist, it is not currently available in the U.S. Even if a vaccine becomes widely available in the U.S. and is incorporated into domestic rabbit RHDV2 prevention/control programs, sound prevention measures remain critical and should be considered the frontline of defense. Such husbandry practices and preventive measures may include strict cleaning and disinfection protocols for facilities and all equipment, restricting movement of animals, and responsible housing to eliminate contact with wild rabbits, among others.

Second, hound hunters should remain vigilant when in the field and report any sick or dead wild rabbits to their state wildlife agency. This surveillance will be critical as wildlife researchers work toward a better understanding of RHDV2 distribution, as well as gather additional information needed to prevent the spread of RHDV2 from the southwestern U.S. to other regions of the country. This information will serve as the foundation for monitoring efforts currently underway through ongoing collaborations between state and federal wildlife and agricultural agencies, and university research units. However, it is extremely important that hunters like you help management agencies be on the lookout for the disease and to help spread the word. Furthermore, as a hunter, you must do your part to protect the resource by adopting good practices that help prevent the movement of RHDV2 on equipment used while hunting in different areas. Surveillance combined with the wide-spread education of hunters, rabbit enthusiasts, and the general public on this significant wildlife threat, is the only way we might slow the spread of this virus. Control of this disease depends on your cooperation and actions and together, these efforts might just give the hare a fighting chance in its race against RHDV2. Whether the tortoise beats the hare is a story for another day.

*This article was adapted from content in the April 2020 issue of the SCWDS BRIEFS Newsletter. The Southeastern Cooperative Wildlife Disease Study (SCWDS) is located at the University of Georgia. To learn more about wildlife diseases such as RHDV2, or to sign up for their quarterly newsletter, please visit their website at: vet.uga.edu/education/academic-departments/population-health/southeastern-cooperative-wildlife-disease-study/.