

Rabbit Haemorrhagic Disease

Spring 2021

Emerging Disease

Rabbit haemorrhagic disease virus (RHDV) occurs in association with mortality of European rabbits, *Oryctolagus cuniculus*, and spread throughout their range since the 1980s. Various forms of the virus are linked to an extremely infectious viral disease in wild, captive, and pet European rabbits. European brown hares, *Lepus europaeus*, are not affected.

Initially, North American wildlife agencies were relieved that RHDV did not infect native North American rabbits and hares. Feral populations of pet European rabbits were susceptible to the virus and some local mortality events occurred in U.S. and Mexico in the early 2000s. Some captive and pet rabbits also died. But wild native lagomorph species (members of rabbit/hare family) in Canada, USA, and Mexico were not affected.

Things changed in 2010. A new rabbit haemorrhagic disease virus, **RHDV2**, was identified in France. It was associated with mortality in European rabbits but also in some hare species. Immunity to the original RHDV was not protective against RHDV2 and large-scale mortality events in rabbits and hares occurred across Europe and Australia.

The first reports of RHDV2 in North America involved mortality in feral domestic rabbits in Quebec in 2016, British Columbia in 2018, and Washington State in 2019. No North American species were involved in these outbreaks, even though the virus was circulating in feral rabbit populations.



Myrna Pearman

Why this matters now

RHDV2 can infect native North America lagomorphs!

Starting in early spring 2020, mortality events in wild jackrabbit and cottontail species were seen in southwestern USA and northern Mexico. RHDV2 was identified in all these outbreaks. Mortality may be more severe in jackrabbit populations than in cottontails.

Since summer 2020, RHDV2 has been identified in an increasing number of western states and northern Mexico. The virus escaped from captive and pet rabbits into adjacent feral populations of domestic rabbits as well as native wild rabbits and hares.

The social nature and natural high density in populations of rabbits and hares facilitates viral transmission. All forms of rabbit haemorrhagic disease are highly contagious, with high mortality rates in susceptible species and populations. North American lagomorphs have no natural protection against this new invasive foreign disease and initial mortality could be quite high as the virus sweeps across the continent.

To date, mortality has been documented in wild black-tailed jackrabbits, antelope jackrabbits, desert cottontails, Nuttall's/mountain cottontails, and Eastern cottontails, as well as feral domestic rabbits.

Alberta has populations of Nuttall's/mountain cottontails.

We also have abundant populations of white-tailed jackrabbits and snowshoe hares. And pikas, which are members of the hare family. While not specifically known to be susceptible, these species could be at risk of infection and mortality from RHDV2.

Currently the disease is documented in ten states in northwest Mexico and eleven states in the western U.S.

RHD viruses are quick & deadly

Unfortunately viruses associated with RHD tend to be:

- highly infectious
- highly virulent
- highly persistent in the environment
- rapidly spread by direct & indirect transmission

What comes next?

Similar to 1999 when west nile virus first arrived in North America, it is hard to predict the final outcome of the interplay among RHDV2 and North American lagomorphs. Possibilities range from localized mortality events in some species in some areas to widespread lagomorph declines at regional or ecological scale. If the latter situation occurs, the best case scenario is that there is sufficient antigenic reaction to stimulate protective immunity in enough survivors to repopulate after the mortality event.

It is unlikely that wildlife managers can make a significant difference in the outcome of this emerging disease invasion when it gets into wild populations. But we can document if or when it arrives and its effects in wild hares and rabbits in Alberta.

This is a classic WILDLIFE disease. It has no implications for human or livestock health. The host range of RHD is limited to wild, feral, captive, and pet rabbits as well as jackrabbits, cottontails, and hares. Pikas face unknown but potential risk.

Wild lagomorphs are key herbivores and essential prey species in various ecosystems. They significantly modify natural vegetation by altering patterns in plant community biodiversity and growth. They also feed a lot of other wild species. Loss of lagomorphs would send ripples through these systems from the bottom-up and the top-down.

UPDATE May 2021

Rabbit haemorrhagic disease virus 2 (RHDV2) was identified in captive domestic household rabbits near Taber, Alberta. All five rabbits at the site died precipitously in late March 2021. RHDV2 was confirmed as the cause of death.

The virus is a federal notifiable disease and the Canadian Food Inspection Agency (CFIA) is investigating. The province is kept apprised of ongoing results.

NOTE: RHDV2 infects only lagomorphs and does not pose health risk to people, livestock, or pets other than rabbits.

<https://www.alberta.ca/wildlife-diseases-in-alberta.aspx>

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What is Alberta Doing?

The Wildlife Disease Unit of Alberta Environment and Parks (AEP) tracks all ongoing reports of RHDV2, particularly in western states and provinces.

We share appropriate information with the public and with government staff in various provincial departments. We ask staff to be alert to potential local mortality events in hares, jackrabbits, cottontails, and pikas.

We ask wildlife rehabilitators to let us know if there is an increase in reports of sick or dying hares or jackrabbits.

Individual wild rabbits and hares born this year (baby rabbits/hares) or any rabbits/hares hit by vehicles are NOT a concern in regards to RHDV2. Groups of dead rabbits or hares of any age (an unusual mortality event) are a concern.

If mortality events are observed by staff or the public, please notify the Wildlife Disease Unit.

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Specific to the recent finding in southern Alberta, AEP is working closely with Agriculture and Forestry to share information and align messaging. Information has been circulated to documented commercial rabbit facilities, the Alberta Veterinary Medical Association, permitted wildlife rehabbers, and to local and provincial AEP wildlife staff.

Owners of pet rabbits are advised to contact their veterinarian directly if they have questions or concerns.

Additional Information

US Department of Agriculture

https://www.aphis.usda.gov/publications/animal_health/fs-rhdv2.pdf

