

Chronic wasting disease: Addressing the issues with cervid prionic disease

September 26 2017

One of the most contagious of the transmissible spongiform encephalopathies, is chronic wasting disease (CWD) which affects deer and represents a risk to human health and the health of farm animals. There are many problems facing livestock managers in North America in the face of CWD, a research paper published in the *International Journal of Global Environmental Issues*, summarizes the efforts in disease surveillance and risk management of CWD and shows that past management strategies such as selective culling, herd reduction, and hunter surveillance have had only limited effectiveness. The summary points towards new advice for optimal, cost-effective strategies in aggressive disease control.

William Leiss of the University of Ottawa, in Ontario, Canada, and colleagues there and elsewhere in Canada and the USA, explain how CWD is a [fatal neurodegenerative disease](#) of various species of animals in the cervid family of mammals. This family includes deer, elk, reindeer, caribou, and moose. The team points out that CWD is endemic in both wild (free-ranging) and captive (farmed) populations of these species which further complicates disease control. The disease is most prevalent among deer species, affecting in particular mule deer, but also black-tailed deer and white-tailed deer.

Chronic wasting disease is closely related to so-called "[mad cow disease](#)", bovine spongiform encephalopathy (BSE), the equivalent disease in sheep known as scrapie and the human disease variant Creutzfeldt-Jakob disease (variant CJD). These various diseases are caused by the

misfolding of proteins or protein fragments, known as prions, which self-replicate, or propagate, in tissue, specifically brain tissue, and lead to cell death and the ultimate demise of the affected organ.

The team points out that [disease surveillance](#) in North America has provided some qualitative assessments of the overall risk of CWD in Canada and the USA. Animals in almost half of all US states and two Canadian provinces are afflicted. The first case outside North America was identified in South Korea in 1997 and while the European Union has strict rules and surveillance in place, an afflicted farmed reindeer was identified in 2016 by the Norwegian Institute for Nature Research and subsequently two wild individuals. The problem is thus likely to become an intercontinental one unless more research is done to understand the disease and find ways to control it.

A new risk control strategy has been proposed for CWD in North America in which controlled forest fires are lit in areas where vegetation and soil are heavily contaminated with the pathogenic prions shed by animal waste and carcasses.

More information: William Leiss et al, Challenges in managing the risks of chronic wasting disease, *International Journal of Global Environmental Issues* (2017). [DOI: 10.1504/IJGENVI.2017.086716](https://doi.org/10.1504/IJGENVI.2017.086716)

Provided by Inderscience Publishers

Citation: Chronic wasting disease: Addressing the issues with cervid prionic disease (2017, September 26) retrieved 13 March 2024 from <https://phys.org/news/2017-09-chronic-disease-issues-cervid-prionic.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.