

Preliminary Outbreak Assessment

Cervid Spongiform Encephalopathy in Norway

7th April 2016

Ref: VITT/1200 Cervid disease in Norway

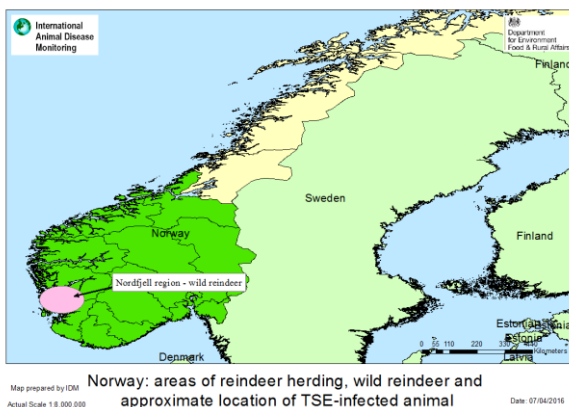
Disease Report

The Norwegian Veterinary Institute (NVI, 2016) has reported a case of prion disease detected in free ranging wild reindeer (*Rangifer tarandus tarandus*), one of a southern population of wild reindeer in the Nordfjella region of Norway; see map;

<http://www.vetinst.no/eng/Highlights/The-first-detection-of-Chronic-Wasting-Disease-CWD-in-Europe>). The (found dead) adult doe showed signs of below average body condition

and was tested as part of the national surveillance programme for CWD in wild ungulates. Prion disease was confirmed in mid-March by both biochemical and immunohistochemical tests. Samples are being sent to the OIE reference laboratory (Canada) before confirmation as Chronic Wasting Disease can be made. If confirmed, this would be the first case of Chronic Wasting Disease detected in Europe. Initial experimental research, suggests that human susceptibility to

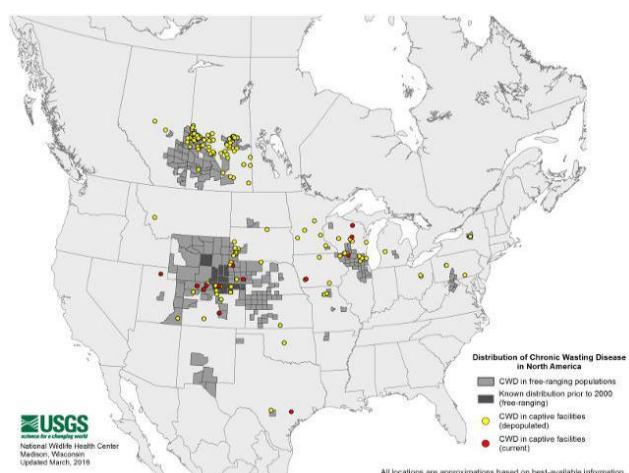
CWD is low and there may be a robust species barrier preventing CWD transmission to humans (Sigurdson, 2008). Norway has put in place additional surveillance.



Situation Assessment

CWD is found in 21 States in the USA as well as the provinces of Alberta and Saskatchewan in Canada (UGS, 2016). It is a slow moving, contagious prion disease which only affects several species of captive and wild cervid, commonly the White tailed deer, *Odocoileus virginianus*, elk (*Cervus elaphus nelsoni*) and moose (*Alces alces shirasi*). This would be the first detection in a naturally-infected reindeer or the related (American) subspecies, caribou.

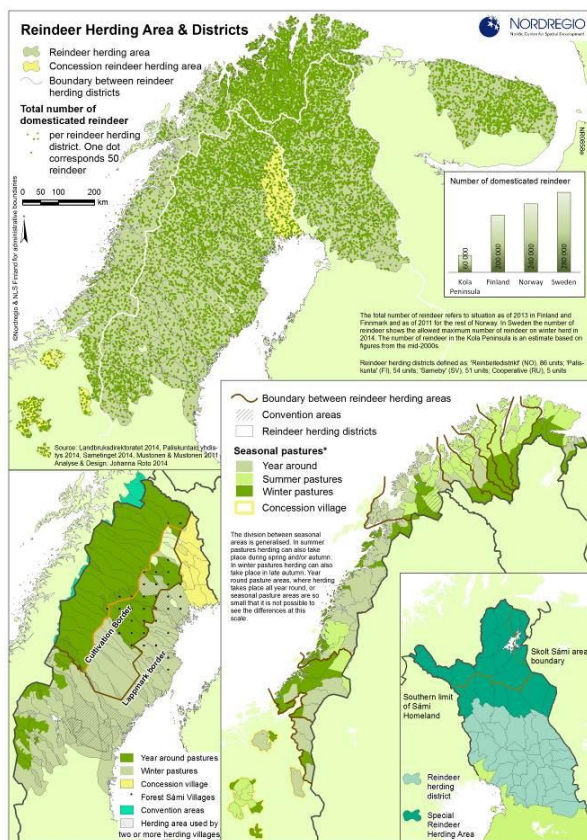
Current range of CWD in North America (USGS, 2016)



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There are four native cervid species in Norway: moose (*Alces alces*), red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*) and reindeer (*Rangifer tarandus*). A large number of free ranging populations graze in areas where another, TSE, scrapie, has been detected (Sviland et al. 2015). Hunting is a popular sport, with over 5% of Norwegians holding hunting licenses to hunt all four native species and around 100,000 animals are hunted a year (Norwegian Scientific Committee for Food Safety, 2013).

Reindeer, when farmed or herded in Norway, come under the jurisdiction of the Norwegian Reindeer Herding Act, 2007.



Almost 40% of the Nordic Countries is a reindeer herding area with between 240,000 and 250,000 animals, located mostly in the North, however herding in Norway is restricted to those with the right to have a reindeer earmark (Sámi people or first / second generation descendants of Sámi), except in the Norwegian Concession Area, where both Sámi and non-Sámi people are engaged in herding (Nordregio, 2016). Wild reindeer live in dispersed populations in separate high mountain areas in southern Norway. Official figures for hunted animals in 2013 put the number at 7,900, more than in previous years (Sviland et al., 2015; Norwegian Scientific Committee for Food Safety, 2013). Reindeer are an important species for this region, with special protected status.

Map of reindeer herding areas in Nordic Countries (Nordregio, 2016)

Norway carries out annual surveillance of reindeer for CWD (Sviland et al., 2015). Fallen stock of wild cervids over the age of 18 months and captive deer are tested. In 2014, very few animals (10) were tested as part of the surveillance and all tested negative; none of these were reindeer. In 2013, 10 animals also tested negative and in 2012, 21 animals tested negative.

Reindeer are not native to the UK and there are only a limited number of sites where reindeer are kept. According to the British Deer Society (2016), there are four sites in GB where reindeer may be found: one in Gloucestershire; one in Fife and two in Inverness-shire. There is understood to be a semi-wild reindeer herd in the Cairngorms, Scotland. According to TRACES, the EU electronic trade notification system, since 2013 there have been 27 consignments of 595 reindeer from the Nordic Countries, but only 2 from Norway,

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in 2013 and 2015, totalling 28 reindeer. The UK has several species of native deer which may be susceptible (eg red deer).

This would be the first natural case of CWD in a reindeer. Experimental evidence from oral transmission experiments of CWD recovered from brain tissue of white tailed deer or elk demonstrated clinical disease in two of three reindeer which received inoculum from white tailed deer but in none of the three animals receiving inoculum from elk (Mitchell *et al*, 2012). Tissue distribution of prion protein (PrP^{CWD}) was similar to that observed in other infected cervids, with multiple organ depositions. Therefore the presence of PrP^{CWD} in saliva, faeces and urine, as seen with other cervids, would also be expected in the case of infected reindeer. In this small experiment, the three reindeer tested appeared not to be infected by CWD isolated from infected elk brain tissue, but there were no definitive conclusions as to whether this was due to a resistant genotype or low titre inoculum.

As seen with the disease status of the USA, once disease becomes established in wildlife, it is very difficult to control. Preventing contact with captive livestock or their pasture will be paramount.

Conclusion

The presence of CWD in a European population of cervids changes the risk assessment to the UK. The risk of incursion was previously considered to be very low, and when more information is available, we will re-assess. What is unknown at present is what the distribution of CWD is in deer in Scandinavia or other parts of Europe: whether it represents a wider problem in farmed reindeer, in other cervid species and other regions or if this is restricted to the wild reindeer in this region and how the disease has arisen: through contact with contaminated equipment, animal by-products from infected animals, feed or as a spontaneous mutation.

We have recently published an updated qualitative risk assessment on the entry pathways for CWD to GB, focussing on North America. This follows reports of imported white tailed deer urine which may be used by hunters as lures in Europe and the assessment considers the potential for such products, whether processed or not, for carrying CWD infectious agents. Other potential pathways include contaminated footwear, hunting equipment or pet food made from venison. For more information please see our qualitative risk assessments available on the gov.uk website, or see www.bds.org.uk.

We will report again when more information is available.

Authors

Dr Helen Roberts
Dr Paul Gale
Dr Jim Hope
Dr Marion Simmons

Department for Environment, Food and Rural Affairs
Animal and Plant Health Agency
Veterinary & Science Policy Advice Team - International Disease Monitoring

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Any enquiries regarding this publication should be sent to us at helen.roberts@apha.gsi.gov.uk