Updated Outbreak Assessment

Cervid Spongiform Encephalopathy in Norway

3rd June 2016 Ref: VITT/1200 Cervid disease in Norway

Disease Report

The Norwegian Veterinary Institute (NVI, 2016) has reported a further case of prion disease, this time detected in free ranging wild Elk (Alces alces), in the Sor-Trøndelag region of Norway; see map; [http://www.vetinst.no/Nyheter/Chronic-Wasting-Disease-CWD-Prionsjukdom-paaavist-hos-en-norsk-elg](http://www.vetinst.no/Nyheter/Chronic-Wasting-Disease-CWD-Prionsjukdom-paaavist-hos-en-norsk-elg) and [http://ec.europa.eu/food/animals/docs/req-com_ahw_20160601_pres_chronic-wasting-disease-map-norway.pdf](http://ec.europa.eu/food/animals/docs/req-com_ahw_20160601_pres_chronic-wasting-disease-map-norway.pdf). The adult (pregnant) female (cow) showed signs of poor body condition and lack of response to stimuli. It was culled and samples tested by both ELISA and Western blot tests. Norway has put in place additional surveillance and will also implement a ban on the trade in live cervids. The two cases are approximately 450 kms apart with no known interaction between their home ranges and herds.

Situation Assessment

The North American moose (Alces alces) is also known as the elk in Europe. It is susceptible to CWD and cases have been found across the moose / elk populations in
both the USA and Canada. *Alces alces* is different to the North American elk (*Cervus canadensis*) which is also susceptible to CWD.

In Europe, the elk is a solitary animal, coming together primarily in the mating season, although young stay with their mothers for several months until the next offspring is born. There is a wide level of variation in their movement behaviour with some undertaking very long range migrations, and others being more sedentary. These movements can be categorised as migration, dispersal, nomadism or residence. In Scandinavia, seasonal migration is more likely in northerly populations (regions north of 66°N) than those in the southern regions (regions between 56°N and 66°N) and mean distances decline from ~100 km to 5 km. Seasonal migration can also change with time, depending on the environmental changes, climate or urbanisation. A recent study into the population genetics of *Alces alces* in Europe suggests there are genetically distinct populations, with the Scandinavian cluster showing low genetic diversity and separate to the other European populations (Niedziałkowska et al. 2016).

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Map of the study area: Distribution of the 16 demes and six moose groups indicated by the analysis of microsatellite DNA (Niedziałkowska et al. 2016). The genetic sub-structuring of the *A.alces* population in Scandinavia is probably due to geographic barriers, such as the Scandes mountain range which separates Sweden and Norway. This supports the
understanding that there is a lower risk of direct disease transmission to other populations of cervids, even of the same species which are separated by geographic boundaries. However, if there has been widespread environmental contamination over time from a common source of prion, then the risk to other populations will be more difficult to assess.

**Conclusion**

This second case of presumed CWD in another European population of cervids is concerning and suggests one of several theories – mixing between the elk and reindeer leading to disease spread from a single point of introduction in one population to the other; two separate incursions of disease into the two regions and populations or; widespread environmental contamination present for at least several months (considering the incubation period). Further surveillance to be carried out by the Norwegian Authorities will shed more light on the veracity of these theories.

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 cervids in Southern Norway.

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](http://www.bds.org.uk).

We will report again when more information is available.

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**References**
