Preliminary Outbreak Assessment

Chronic wasting disease prions in cervids and wild pigs in North America

26 January 2026

Disease report

Chronic wasting disease (CWD) is a fatal neurodegenerative disease of cervids, such as deer, elk, moose and reindeer. It is caused by prions – infectious proteins that cause normal cellular prion proteins to misfold (CIDRAP, 2025). The disease is widespread in captive and free-ranging cervids in North America (**Figure 1**). For the first time, CWD prions have also been detected in the tissues of wild pigs (Sus scrofa) caught in CWD-affected areas of the USA (Soto et al. 2025). This discovery emerged from a study designed to investigate potential interactions between wild pigs and CWD prions, as wild pigs often coexist with cervids, which can shed prions into the environment. The following assessment discusses the epidemiology of CWD in North America and the detection of CWD prions in wild pigs. It also considers the potential implications for Great Britain.

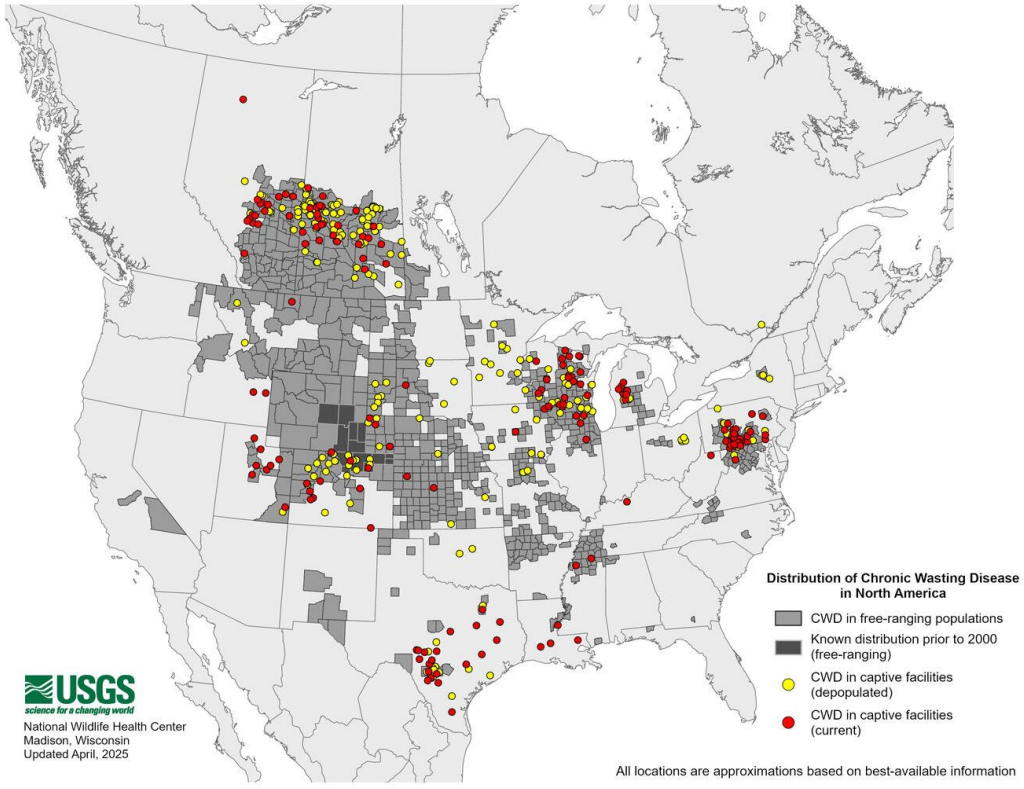

Figure 1. Distribution of CWD in cervids in North America as of 11 April 2025 (USGS, 2025).

Situation assessment

CWD is considered one of the most important cervid diseases due to its capacity for infectious spread, high mortality rate and associated socio-economic impacts on cervid farming and hunting-related industries (Kincheloe et al., 2021, CFSPH, 2024). The disease is always fatal, with no cure or vaccine (CFSPH, 2024).

CWD was first reported among captive cervids in the USA in the 1960s (Kincheloe et al., 2021). It has since been detected in captive and or free-ranging cervids in 36 US states and 5 Canadian provinces, as well as South Korea, Norway, Finland and Sweden (Silva, 2022, USGS, 2025). While the South Korean strains are thought to have originated from North America, the European strains appear to have emerged independently (Silva, 2022).

Transmission between cervids occurs by direct contact with infected animals or indirectly, through contact with a contaminated environment, most likely via the oral route (Otero et al., 2021). The disease may also be vertically transmitted from doe to fawn (Nalls et al., 2013, Salariu et al., 2015). Environmental contamination occurs when infected animals shed infectious prions in various secretions and excretions, such as urine, faeces and saliva (Otero et al., 2021). It can also occur when infected carcasses decompose and release prions into the surrounding soil and vegetation (Miller et al., 2004). The minimum number of CWD prions required to cause infection in cervids is unknown but appears to be low (Denkers et al., 2020).

The disease is difficult to control, as infected animals can also be subclinical for months or years. During this time, they can shed CWD prions, which can remain infectious in the environment for at least 2 years (Miller et al., 2004, CFSPH, 2024). Diagnosis usually relies on post-mortem tests, which may fail to identify infected animals during the early stages of the disease (CFSPH, 2024, CIDRAP, 2025). Control efforts are further hampered by lack of evidence to inform effective CWD management and control strategies (Uehlinger et al., 2016, Mori et al., 2024).

CWD in North American cervids

CWD has been reported in a range of North American cervids, including white-tailed deer, mule deer, black-tailed deer, moose, wapiti, reindeer (captive) and red deer (captive) (EFSA BIOHAZ Panel, 2023). It was first reported in captive mule deer and black-tailed deer at research facilities in Colorado and Wyoming in the late 1960s (Otero et al., 2021). These animals were derived from wild populations. The disease was later identified in Rocky Mountain elk at these facilities and subsequently, in free-ranging populations of mule deer and elk in Wyoming and Colorado. The geographic expansion of CWD in North America is thought to reflect the commercial movement of subclinical animals and natural cervid migration (Otero et al., 2021).

Epidemiological data suggest that the disease spread from the USA to Canada and then to South Korea through imports of infected cervids (Otero et al., 2021). A retrospective analysis revealed that, in 1978, a Colorado-born mule deer at Toronto Zoo in Ontario, Canada, died of CWD (Dubé et al., 2006). In 1996, the disease was detected in captive elk in Saskatchewan (Williams and Miller, 2002). The disease

has since been detected in captive cervids in Alberta and Quebec and free-ranging cervids in Alberta, British Columbia, Manitoba and Saskatchewan (USGS, 2025). The origin of the outbreak in free-ranging Canadian cervids is unknown (Otero et al., 2021).

While the spread of CWD across North America is often described as 'rapid,' it has been suggested that this may reflect widening disease surveillance, rather than a 'real-time' indication of geographic spread. CWD epidemics appear to develop relatively slowly compared with other wildlife diseases (EFSA BIOHAZ Panel, 2023). Field and modelling data from North America suggest that it may take 15 to 20 years for CWD prevalence to reach 1% in free-ranging cervid populations, although more rapid transmission may occur in captive populations. The surveillance sensitivity in North America means that the disease may have been present for 10 years or more in some areas before it was detected (Miller et al., 2000).

The prevalence of CWD in affected populations or species varies across North America. In captive herds, prevalence may reach 100% over time, while in affected free-ranging populations, reported prevalence ranges from <1% to >30%. Most clinical cases are observed in cervids 2 to 7 years old, especially males, which is believed to be due to behavioural differences rather than differences in susceptibility between sexes (EFSA BIOHAZ Panel, 2023). At least 13 different risk factors may contribute towards CWD spread in North America, such as host genetics, high deer density or inappropriate disposal of deer carcasses and slaughter by-products (EFSA BIOHAZ Panel, 2019).

Approaches towards CWD control and surveillance in captive and free-ranging deer vary widely across North America within and between jurisdictions (CIDRAP, 2025). A summary of the measures in place in each US state and Canadian province is available from the CWD Alliance (2026), a coalition of wildlife conservation agencies, dedicated to providing accurate information on CWD and supporting strategies to minimise its impact on free-ranging cervids. Wildlife agencies rely on voluntary testing of hunted deer carcasses as the main mechanism for CWD surveillance and management, usually using post-mortem ELISA or immunohistochemistry methods (CIDRAP, 2025).

In the USA, Animal and Plant Health Inspection Service (APHIS) operates the CWD Herd Certification Programme (HCP) in collaboration with state and wildlife agencies. This is a voluntary scheme which aims to provide a consistent, national approach to controlling CWD in farmed cervids and preventing interstate spread by establishing control measures such as fencing, detailed record keeping and CWD testing of all cervids over 12 months old that die for any reason. The Canadian Food Inspection Agency (CFIA) operates a similar programme, the CWD Herd Certification Programme. As of December 2025, 28 states were participating in the USA's CWD HCP and 5 Canadian provinces and one Canadian territory were participating in the Canadian programme (USDA, 2025b, CFIA, 2025).

Control methods fall within three general categories: prevention, containment, and control and suppression. Prevention and containment aim to prevent CWD

introduction into areas where it has not previously been reported and to limit its geographical spread once it has been introduced, respectively. Both tend to include regulatory measures such as bans on the movement of live cervids, cervid carcasses or specified risk materials. Control and suppression aim to stabilise or reduce infection rates within a herd or population through measures such as selective or random culling (EFSA BIOHAZ Panel, 2017).

Despite control efforts, CWD has continued to spread among captive and free-ranging cervids in North America, with increasing prevalence in affected areas (Uehlinger et al., 2016, CFSPH, 2024). Eradicating CWD from North America appears infeasible due to its extent of geographic spread and epidemiological characteristics, such as environmental persistence (EFSA BIOHAZ Panel, 2017).

CWD in wild pigs in the USA

Wild pigs are an invasive population in the USA, especially in the south (**Figure 2**). They comprise escaped domestic swine, Eurasian wild boar and hybrids of the two (Smyser et al., 2020). Wild pigs frequently coexist with cervids in areas where CWD is endemic and may be exposed to CWD prions through rooting in contaminated soil, scavenging deer carcasses and predation on fawns. These ecological interactions provide multiple routes by which wild pigs could encounter prions from infected deer (Soto et al. 2025).

Under experimental conditions, domestic pigs can become infected with CWD by oral and intracerebral routes, suggesting that wild pigs might also be susceptible. Domestic pigs rarely develop clinical signs of CWD but accumulate prions in the lymphoid tissues in their heads and gut, suggesting that, like cervids, they could shed the prions in saliva and faeces (Moore et al., 2017).

Against this background, Soto et al. (2025) investigated potential interactions between wild pigs and CWD prions. They analysed over 300 brain and lymph node samples from 178 wild pigs living across Arkansas and Texas, USA. The animals were captured by the United States Department of Agriculture (USDA) between 2020 and 2021. None of the pigs included in the study were reported to be displaying clinical signs of disease.

Using an ultra-sensitive laboratory method (protein misfolding cyclic amplification (PMCA)), the researchers identified CWD prions in up to 37% of the lymph node samples and 15% of brain samples. The lowest detection rates were in the Texas samples (below 16%), matching the lower CWD prevalence in the state's cervid population. These findings indicate that wild pigs are naturally exposed to CWD prions in areas where the disease is present (Soto et al., 2025).

When intracerebrally inoculated with tissues from wild pigs, a small proportion of mice expressing deer prion protein developed subclinical prion infection. No transmission was detected in mice expressing pig prion protein. This suggests that wild pig tissues only contain low levels of infectious prions and that wild pigs are relatively resistant to natural infection. However, they could still contribute to CWD transmission, influencing its epidemiology, geographic distribution and interspecies spread (Soto et al., 2025).

While their exact role and importance in CWD transmission is unclear, wild pigs have considerable home ranges in North America (1.1 to 5.32 km on average), which may increase when food is scarce. This mobility could complicate efforts to control the disease if they play a role in its transmission (Soto et al., 2025).

The USDA's APHIS does not currently conduct active surveillance for CWD in wild pigs (USDA, 2025a).

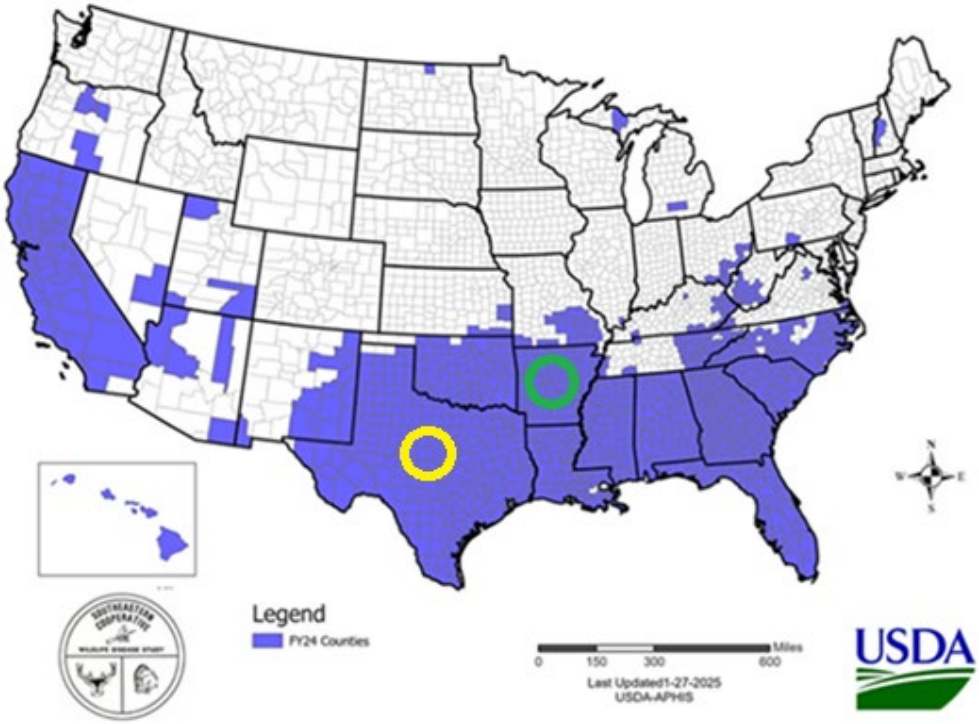

Figure 2. Geographic distribution of wild pigs (purple) in the USA as of 27 January 2025, comprising escaped domestic pigs, Eurasian wild boar and hybrids of the two (adapted from USDA, 2026). Yellow (Texas) and green (Arkansas) circles indicate the states where CWD prions were detected in wild pig tissues.

Implications for Great Britain

CWD is a notifiable animal disease in Great Britain, but no cases have ever been reported (Defra and APHA, 2018, CIDRAP, 2025).

The introduction of CWD into Great Britain's cervid population could have devastating socio-economic and animal welfare impacts, resulting in marked population declines, as seen in the USA (Miller et al., 2008). There could also be significant losses to cervid farming, hunting and rural tourism industries, as well as significant costs associated with controlling the spread of the disease. The UK venison market alone is worth an estimated £100 million (Scotland Food and Drink, 2018).

There are several discrete wild pig populations in Great Britain, including wild boar and feral pigs. The largest known population is in the Forest of Dean in Gloucestershire, with an estimated 583 wild boar as of 2025/2026, although Forestry England (2025) aims to reduce the number to 400 to protect other species, such as plants and insects. Pockets of wild boar and feral pigs exist in other parts of the country, but their exact numbers are unknown (Mathews et al., 2018). The potential impact of CWD introduction into Great Britain's wild pig population is uncertain because their role in disease transmission remains unclear. While they appear to be relatively resistant to natural CWD infection and disease, they could potentially contribute towards the maintenance and spread of CWD in Great Britain's cervid population (Soto et al., 2025).

To reduce the risk of CWD introduction, Great Britain suspended the import of live cervids and high-risk cervid products in June 2023, including urine hunting lures, from all countries where CWD has been reported. Fresh cervid meat, excluding offal and spinal cord, can only be imported into Great Britain from CWD-affected countries if it has tested negative for CWD using an approved diagnostic method, such as immunohistochemistry, and originates from an area where CWD has not been reported or officially suspected in the last 3 years (Defra and APHA, 2026).

The current risk of CWD prions being introduced into Great Britain's wild pig or cervid population ranges from **very low** (event is very rare but cannot be excluded) to **negligible** (event is so rare it does not merit consideration). This is based on the risk of incursion tool, developed by Roberts et al., (2011). It is also supported by a recent Defra and APHA (2025) risk assessment. While this assessment identified a few theoretical entry pathways, such as contaminated equipment, that could not be fully assessed due to limited data, there is no definitive evidence that they have ever resulted in the introduction of CWD into a new area.

Detection of CWD prions in wild pigs in the USA is unlikely to affect Great Britain's CWD risk level, as the USA is not approved to export live wild pigs to Great Britain (Defra, 2025). Import of infected wild pig meat or wild pig by-products from the USA could theoretically introduce CWD prions into Great Britain, but the risk of this is also very low. To date, CWD prions have only been reported in lymph node and brain tissue samples in wild pigs, at levels too low to cause disease in mouse models

(Soto et al., 2025). However, their presence in other tissues cannot be excluded. The USA is approved to export wild pig meat and certain wild pig by-products to Great Britain, excluding offal, minced meat and germplasm (Defra, 2025), but there appears to be limited trade in these commodities.

It is difficult to quantify the exact amount of wild pig meat exported to Great Britain, as available trade data does not always distinguish between meat of wild and domestic pigs. However, based on HMRC data, the last known export of non-domestic pig meat from the USA to Great Britain was in 2013 (4,881 kg).

Conclusion

CWD has continued to spread among captive and free-ranging cervids in North America since it was first detected in the 1960s. The finding of CWD prions in wild pigs in the USA suggests they could contribute towards transmission of the disease, influencing its epidemiology, geographic distribution and interspecies spread. However, further research is needed to confirm this. CWD has never been reported in Great Britain and the current risk of CWD prions being introduced into Great Britain's wild pig or cervid population ranges from **very low** to **negligible**.

Readers are reminded to be vigilant for signs of CWD. Information on how to spot the disease can be found here. Suspected cases must be reported immediately to the Defra Rural Services Helpline on 03000 200 301. In Wales, call 0300 303 8268. In Scotland, contact your local Field Services Office. Failure to do so is an offence.

We will continue to monitor the situation.

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