

Updated Outbreak Assessment #3

Epizootic Haemorrhagic Disease in Europe

4 October 2023

Disease report

On 21 September, the presence of Epizootic Haemorrhagic Disease (EHD) was officially reported in France for the first time ([WOAH 2023](#)). Since then, the French Ministry of Agriculture and Food Sovereignty ([MASA](#)) have confirmed a total of 19 outbreaks of EHD, primarily in Pyrénées-Atlantiques and neighbouring municipalities (MASA 2023) (Figure 1). As of the 4 October, the EU Animal Diseases Information System ([ADIS](#)) has reported 50 new outbreaks in Spain and 17 in Portugal. Since our [previous report](#) on 6 September 2023, there have been additional outbreaks of EHD in Spain and Portugal. Additionally, the Spanish Ministry of Agriculture, Fisheries and Food have reported a further 43 outbreaks in Spain as of 4 October 2023, and many of these outbreaks occurred less than 60km from France.

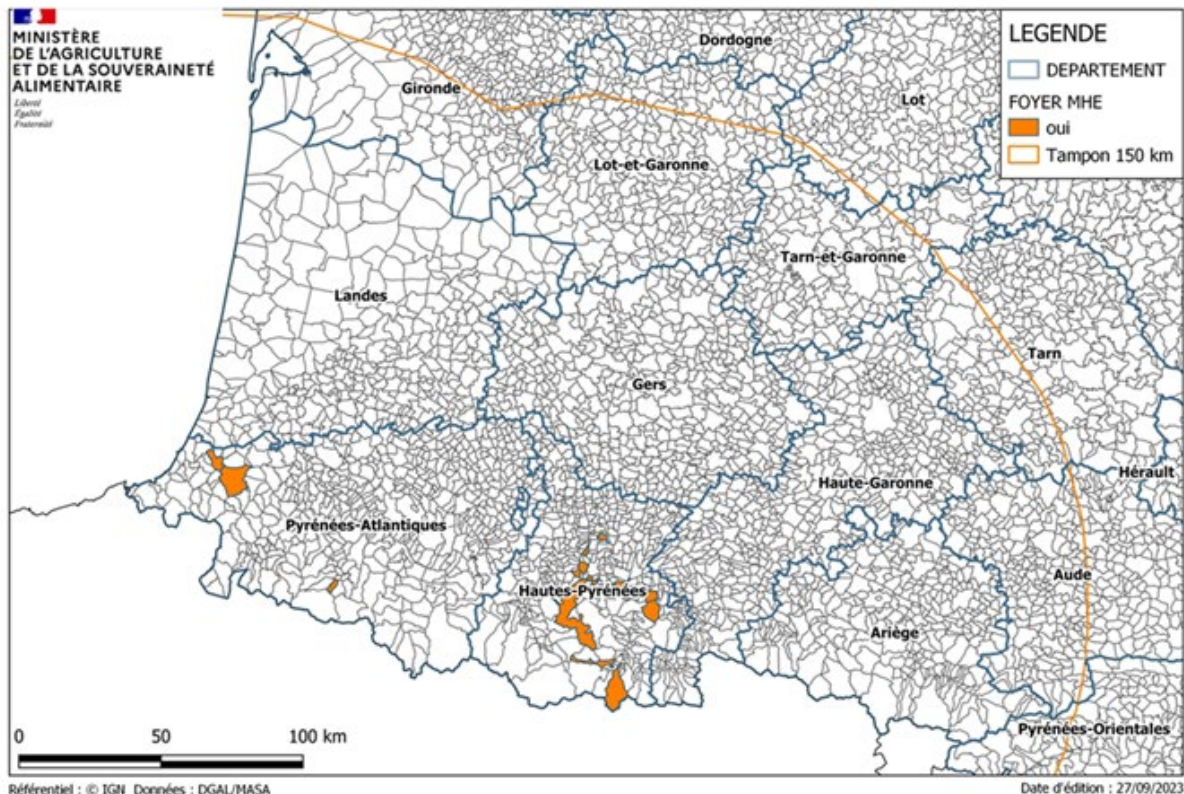


Figure 1: Map showing 19 municipalities in southern France positive for EHDV (filled in orange) and the 150km restriction zone (orange line) reported by the French Ministry of Agriculture and Food Sovereignty on 27 September 2023 (Source: [Animal health: implementation of complementary measures to prevent the spread of epizootic haemorrhagic disease \(HED\) | Ministry of Agriculture and Food Sovereignty](#) accessed 4 October 2023).

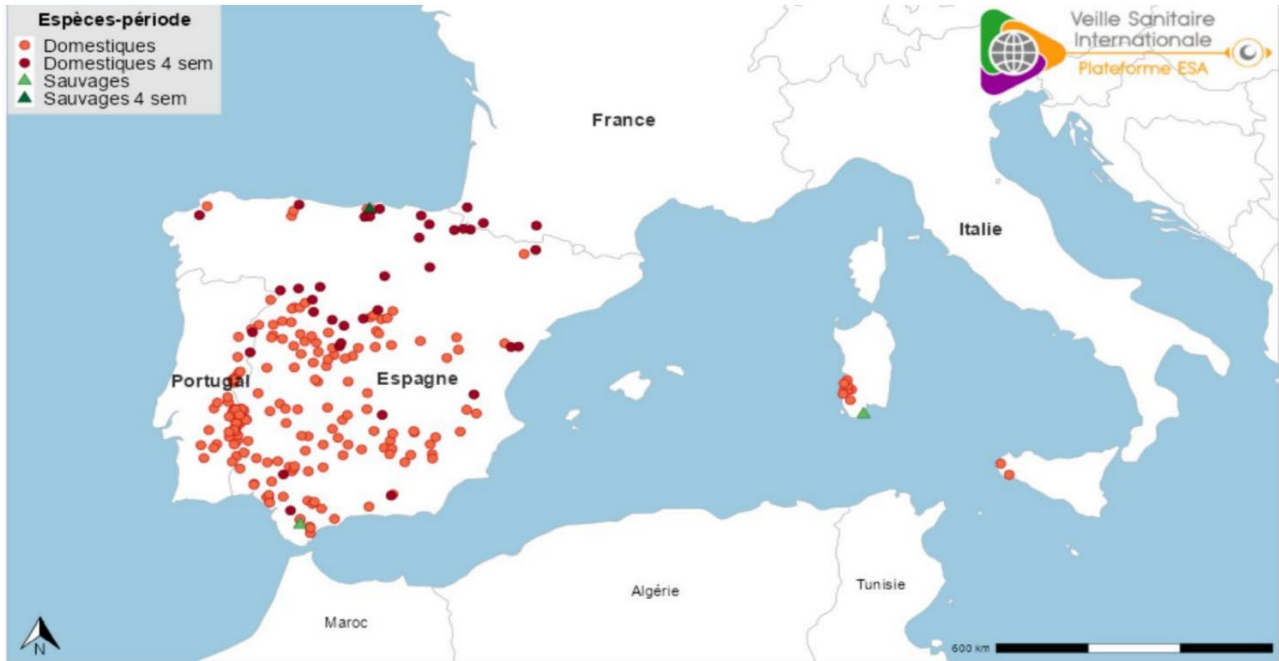


Figure 2: Map showing historic Epizootic Haemorrhagic Disease outbreaks (orange dots) and outbreaks that have occurred between 4 September and 2 October (red dots) in Europe reported by ADIS (Source: <https://www.plateforme-esa.fr/fr/bulletins-hebdomadaires-de-veille-sanitaire-internationale-du-19-09-2023>, accessed 4 October 2023).

Situation assessment

The EHD virus (EHDV) has been notifiable to the WOAHA since 2008 and EHD is notifiable in EU Animal Health Law, Commission Implementing Regulation 2018/1882/EU. The virus infects many ruminant species and may manifest as haemorrhagic disease, although sub-clinical infection may also occur (WOAHA, 2019). EHDV is present in neighbouring countries to Europe, across the Middle East and North Africa. To date, there are 8 recognised serotypes of Epizootic Haemorrhagic Disease Virus (EHDV), though it is likely that more exist (Pirbright, 2022). EHDV-8 is the serotype previously reported in Italy, Spain and Portugal.

France

The national reference laboratory for animal health of Maisons-Alfort (ANSES) originally confirmed the presence of EHDV serotype 8 in cattle on 3 farms located in the French Pyrenees region (MASA 2023). All 3 of these cases occurred within 60km from recent outbreaks reported in Huesca province and Basque Country. As of 4 October, there have been 16 outbreaks in Pyrénées-Atlantiques and 3 outbreaks in Hautes-Pyrénées (Figure 1). It has been suggested that the primary vectors (*Culicoides*) are capable of traveling up to 150km across land in one day in favourable wind conditions (Mellor 2002). However, at this time there is no clear indication as to how EHD or infected *Culicoides* crossed the Pyrénées mountains. To control the spread of EHD, French authorities have prohibited the

export of live cattle from the Pyrénées-Atlantiques, Hautes-Pyrénées, Landes, Gers, Haute-Garonne and Ariège regions. In addition, there are restriction zones in 6 neighbouring areas of Gironde, Lot-et-Garonne, Tarn-et-Garonne, Tarn, Aude and Pyrénées-Orientales (MASA 2023).

Spain

The Spanish Ministry of Agriculture, Fisheries and Food have documented the spread of EHD virus (EHDV) across mainland Spain (Figure 3). Of the 93 outbreaks reported since our last update on 6 September 2023, the majority have occurred near Huesca province (28.5km from the French border) and Basque Country (52.7km from the French border) showing continued spread of EHDV northeast (ESA 2023). *Culicoides obsoletus* has been implicated as a potential significant vector in the spread of EHD in Spain (PAFF 2023). This recent surge in outbreaks in Spain could be associated with *Culicoides* populations peaking, which occurs around mid-summer to late autumn (Savini et al., 2011). Current measures in Spain involve disinsection of animals and farms in affected areas and the monitoring of sheep and goat farms in affected zones, as these may be carriers of EHDV without showing clinical symptoms ([PAFF 2023](#)).

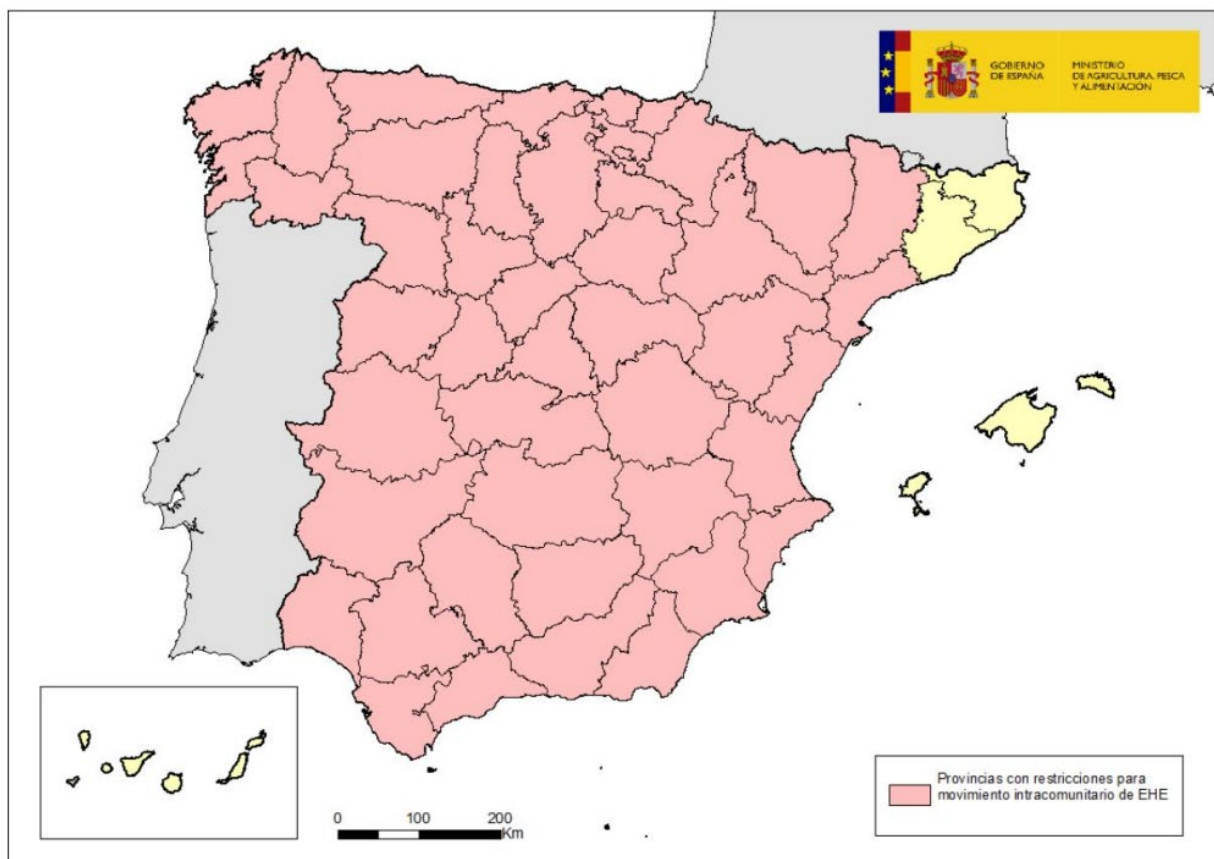


Figure 3: Map showing Epizootic Haemorrhagic Disease restriction zones in Spain reported by the Spanish Ministry of Agriculture, Fisheries and Food, since November 2022 (Source: [Update on the situation of Epizootic Haemorrhagic Disease](#), accessed 4 October 2023).

Portugal

Since our last report, and as of 29 September 2023, 17 more outbreaks of EHD have been reported in Portugal, bringing the total to 57 outbreaks, predominately along the border with Spain (ADIS. 2023).

Italy

According to ADIS data, there have been no additional outbreaks in Italy since our last report. There has been a total of 10 outbreaks in Sardinia and 2 in Sicily, with the most recent outbreak being recorded on 26 April 2023. The serotype of EHDV responsible for the outbreaks in Italy was confirmed to be the same EHDV-8 strain detected in Tunisia, by EDTA blood samples using Vet-MAX EHDV Kit (Thermo Fisher Scientific) (Lorusso et al., 2023).

Conclusion

EHD has now been confirmed in southern France after crossing the Pyrenees mountains which border Spain. This is significant because now that EHDV has crossed the Pyrenees mountains there is greater potential for spread across mainland Europe towards Great Britain. These outbreaks are located in areas of medium to very high abundance of *C. obsoletus* and *C. scoticus*, and the climate of the Pyrénées-Atlantiques region has particularly mild winters resulting in reduced periods of “vector inactivity” (source: [emergence of EHD in France](#), plateforme ESA, document in French). Therefore, there could be more cases of EHD reported in the region in the coming weeks. It was previously assumed that the movement of live viraemic animals and/or infected vectors into France from an affected area would be the most likely way in which EHDV would enter the country. This is still the most likely case for Great Britain.

Several candidate Culicoides biting midge species have been identified as potential vector species in Europe. Fully disseminated infections have been identified in *Culicoides obsoletus* (as has been indicated as the vector of interest in Spain) and *Culicoides scoticus* following experimental infection with EHDV (Maurer et al., 2021), and EHDV has also been detected in a single field caught *Culicoides punctatus* specimen in Japan (Yanase et al., 2005). These 3 species are widespread across northern Europe and Great Britain and have huge local abundance on livestock farms during the vector active season between mid-Summer and Autumn. Moreover, higher temperatures during the summer and autumn are linked to decreased incubation period of EHDV and greater life span of midges, which may contribute to enhanced transmission and explain the sharp increase in outbreaks recorded in Spain and Portugal (Jiménez-Cabello 2023, Wittman et al., 2002). Different strains of EHDV from North America have been shown to be transmitted with different efficiencies in *Culicoides sonorensis* (McGregor et al. 2019). The minimum temperature required for EHDV replication within the midge is 15.2°C (Wittmann et al., 2002). This is higher than that for BTV and also for African horse sickness virus (AHSV).

These Culicoides are potentially capable of traveling up to 150km over land and 700km over water in one day (Mellor et al., 2000). It should be noted that the outbreaks that occurred in French cattle farms are close to recent outbreaks that occurred in Spain. At this time, the route of entry into France is unclear.

There have been consignments of live cattle and sheep scheduled to arrive in Great Britain from France in recent weeks. Back tracing is being conducted to identify any consignments of live ruminants and ruminant germplasm from France over the past 28 days and trade of live ruminants from France is postponed as they are no longer able to comply with relevant animal health certificates. Additionally, there have been no trade consignments of live cattle or sheep received in Great Britain from Portugal, Sardinia, Sicily, or Spain since 1 September 2022.

The possibility for the windborne incursion of midges to Great Britain from the near continent is monitored frequently, with a collaborative effort between APHA, The Pirbright institute (as vector and disease experts) and the Met Office (who can predict potential airborne movement of vectors into Great Britain). As there is currently a ban on the trade of live animals from the affected areas and tracings of imports from France in the four-week period prior to EHD is underway, the risk to Great Britain is currently from the incursion of infected midges (windborne and via transport) from areas we are trading with that have undetected EHDV.

Therefore, we consider the risk of introduction of EHDV into Great Britain via movement of live animals and/or vectors to be **Negligible**. We will continue to monitor the situation.

Authors

Adem Yusuf

Dr Sonny Bacigalupo

Anthony Pacey

Dr Lauren Perrin

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Any enquiries regarding this publication should be sent to us at iadm@apha.gov. Great Britain