

# Rabbit Haemorrhagic Disease 2 (RHD-2): An Irish experience

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## Overview

Rabbit haemorrhagic disease 2 (RHD-2) is a calicivirus which causes a necrotising viral hepatitis in lagomorphs i.e. rabbits and hares (Figure 1). In 2010, RHD-2 was first detected in France (Le Gall-Reculé *et al.* 2013). Since then, it has been detected across Europe and the world. Although primarily identified in rabbits, the virus has also been detected hare species, including the Corsican hare (*Lepus corsicanus*) (Italy), Mountain hare (*Lepus timidus*) (Sweden) and European brown hare (*Lepus europaeus*) (multiple European countries).

In 2016, RHD-2 was first detected in rabbits in County Cork (Figure 2 Marker A). In July 2019, a wild rabbit colony on Scattery Island experienced an acute mortality event (Figure 2 Marker B). Concurrently, similar events occurred in the Wexford Wildfowl Reserve (Figure 2 Marker C). Following necropsy, RHD-2 virus was identified in tissues via molecular testing. From September to December 2019, RHD-2 was subsequently detected in numerous wild rabbits across the country. In the same period, five Irish hares found dead across a number of counties also tested RHD-2 positive (Fig 2 Locations marked H).

## The Irish Hare

The Irish hare, *Lepus timidus hibernicus*, is a subspecies of the mountain hare native to the island of Ireland. Small numbers of European brown hares are also found in the North East of the island. Hares are protected species under the Wildlife Act 1976 / 2000, overseen by the NPWS. They are mostly solitary animals, living at mean densities of approximately 3.2 km<sup>2</sup>. Population trends and trajectory analyses are difficult in the absence of repeated long-term data, but significant interannual variation in abundance is apparent. Current estimates suggest the national population to number approximately 223,000 (Magowan *et al.* 2019). RHD-2 infection dynamics and kinetics in Irish hares remain speculative. It is unknown how this new virus may affect Irish hare populations into the future.

## Conclusions

- RHD-2 has been detected in lagomorphs in Ireland.
- The Irish hare is susceptible to infection with the virus.

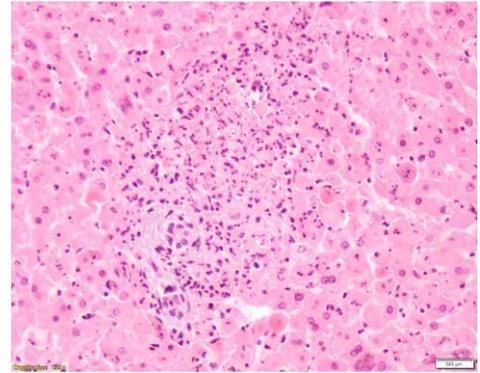


Figure 1: Photomicrograph illustrating acute focal hepatic necrosis with evidence of round intracellular basophilic inclusions (H&E 20X).

Photograph courtesy Margaret Wilson, DAFM



Figure 2. Map illustrating the geographical extent of the spread of RHD-2 characterised by the cases detected Sept -Dec 2019

## References

1. Le Gall-Reculé, G., et al. (2013). Emergence of a new lagovirus related to rabbit haemorrhagic disease virus. *Veterinary Research*, 44, p.81.
2. McGowan, N.E. et al. (2019) National Hare Survey and Population Assessment 2017-2019. *Irish Wildlife Manuals*, No. 113.