pestiviruses obtained from clinical material in England and Wales as recently as 1996/97 (Vilcek and others 1999). The latter finding indicated that cattle were less permissive than sheep when it comes to susceptibility to ruminant pestiviruses, and thus the conclusion that BDV seemed to be confined to sheep. The diagnosis of congenital persistent infection in at least one of the described cases shows that BDV can cross the bovine placenta. As regards the origin of the bovine BDV infections we describe here, possible contact between sheep and the dams of these cases over the susceptible period of pregnancy was noted on only one premises; on another of the farms there was no sheep contact and in the third case no such information was available. It remains to be seen whether BDV could have produced a persistent infection in cattle for more than one generation without direct contact with sheep.

The finding of natural infection of BDV in cattle has important implications for BVD control programmes, since many modern diagnostic tests may be too specific to also detect BDV. This applies to both antigen ELISAs, especially glycoprotein-detecting ones based on BVDV monoclonal antibodies, and in particular RT-PCRs, which by their nature are much more specific than antigen/antibody-based assays. Unless diagnostic assays based on these two detection principles have been proven to also detect BDV, a new and minor but not insignificant risk of underdiagnosis of pestivirus viraemia in cattle has been identified. Furthermore, it is unknown to what extent natural immunity to any of the BVD viruses currently circulating within the UK will provide cross-protection of cattle against BDV. Similarly, the efficacy of the BVD vaccines currently sold in the UK against BDV is also unknown.

More detailed information on the epidemiology, clinical details and virology of these cases will follow. The VLA will continue to identify pestiviruses isolated from farm animals as part of its obligation to provide surveillance information to DEFRA.

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Serosurvey of West Nile virus in equids and bovids in Spain

SIR, – In Spain, although West Nile virus (WNV) has not been detected, it is hypothesised that it is circulating in the southernmost part of the country, particularly in the area neighbouring recent WNV foci in Portugal (Esteves and others 2005) and Morocco (Schuffenecker and others 2005). This area of Spain encloses the Guadalquivir marshes (Doñana National Park) and adjoining wetlands, a favourable habitat for WNV transmission.

Recent studies on the prevalence of antibodies to WNV in different types of wild birds from this area also support WNV activity (Figuerola and others 2007). However, neither noticeable bird mortalities nor disease signs in susceptible mammals, particularly in horses, suggestive of WNV infection have been reported.

We conducted a serosurvey in feral horses and cows, abundant in the area. Serum samples from 157 horses (Retuerta breed) and 194 cattle (Mostrenca breed) living in the Doñana area were examined for WNV-specific neutralising antibodies by a virus neutralisation test (VNT) as described by Figuerola and others (2007). The samples were taken between June and September 2005. The results are shown in Table 1.

Thirteen horses (8·3 per cent) showed significant serum antibody titres neutralising WNV (E101 strain) in vitro (mean geometric titre [sd] 2·25 [0·54]), whereas none of the cattle sera examined showed significant neutralising antibody titres to WNV (only titres equal or above 1:20 were considered positive, and positive samples were tested at least twice for confirmation).

Our results show that while horses in Doñana National Park have been exposed to WNV – or to an antigenically closely related virus – at some time during their lives, cattle living in the same area lack detectable antibodies to WNV, either because they are less exposed or because, being exposed, they are less susceptible to WNV infection. The WNV-specific antibodies found in horses in Doñana are in agreement with our previous findings in wild birds in the same area, thus supporting the existence of WNV activity in this region of southern Spain. Alternatively, a virus closely related to WNV, cross-reacting in the highly specific VNT, could be responsible for the observed serology. Recently, two new viruses closely related to WNV have been described (Bakonyi and others 2005, Bondre and others 2007), both cross-reacting with WNV and apparently of low pathogenicity, which, most likely, has helped them to remain unnoticed. Whether the virus causing the antibody response detected in horses and birds in Doñana is a classic (lineages 1 or 2) WNV or a WNV-like variant remains to be determined.

TABLE 1: Results of the serological survey in feral horses and cattle

Species	VNT titres <1:20	1:20	1:40	1:80	1:160	1:320	1:640	1:1280
Horse	144	1	1	4	1	2	3	1
Cattle	194	0	0	0	0	0	0	0

VNT Virus neutralisation test

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