

A Cross-Sectional Study on Enteric Disease Agents in UK Deer: Preliminary Report

Samuel Pearce¹, Dr Tristan Cogan¹, Dr Katy Turner¹ and Dr Aiden Foster¹.

¹ Bristol Veterinary School, University of Bristol, Langford House, Langford, Bristol BS40 5DU.

Wild deer products have been linked to outbreaks of *E. coli* 0157 in humans and bovine tuberculosis in domestic cats, raising concerns around foodborne diseases from venison. The epidemiology of these pathogens in deer are not well understood. As UK deer populations are rising, it is important to understand the possible impact to public health and livestock health. This study investigates the prevalence of several enteric disease agents in UK deer populations, including foodborne pathogens and diseases of importance to livestock health. Intestinal samples were collected from slaughtered farmed deer (N = 211) and shot wild deer (N = 136); and ground faecal samples were collected from 2 farms (N = 90), six parks (N = 228) and five zoos (N = 67). DNA was extracted and multiplex qPCR assays were run to amplify targets of *C. difficile* toxins, *C. perfringens* toxins, *Campylobacter* spp., *E. coli* toxins, *Mycobacterium avium* subsp. *paratuberculosis* (MAP), *Salmonella* spp. and *Yersinia* spp. Commonly amplified targets were *E. coli astA* (61.2%) and *Campylobacter* spp. (43.3%). However, the prevalence of *C. coli* and *C. jejuni* were < 3.0% and *Salmonella* spp., MAP and *Yersinia pseudotuberculosis* also had low overall prevalence of 1.6%, 3.3% and 2.6%, respectively. However, notable targets included *C. perfringens* toxins α (20.4%) and β 2 (16.9%); *E. coli stx1* (14.6%) and *stx2* (17.8%); and *Yersinia enterocolitica* (10.8%). The low prevalence of some foodborne pathogens is reassuring for food safety, but further investigations are needed into the more commonly found targets.